第Ⅲ部

第一次事前評価調査報告書

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第１章　調査団の概要

１－１　経緯と目的

2009 年 1 月より実施予定の技術協力プロジェクト「ハサヌディン大学工学部支援プロジェクト」は、既に実施中である円借款プロジェクト「ハサヌディン大学工学部整備事業」との一体的実施の案件として位置づけられ、双方の事業の一体的実施が期待されている。技術協力の実施につき、工学部の長期的なビジョン策定、円借款プロジェクトで行われる施設建設、機材選定の基本計画の策定段階にも関わる必要がある。

円借款における施設建設の基本計画の策定、機材選定が 2008 年 3 月前半に行われることから、同時期に日本の大学教員を含む、第一次事前評価調査団の派遣を決定した。調査の目的は以下のとおり。

（1）大学工学部の運営方針・長期計画等のコンセプトに関し、包括的な観点から意見交換を行う。

（2）大学工学部への技術協力プロジェクトの内容について関係者と協議する。基本コンセプトは教育・研究能力の向上の基盤強化とする。

（3）実際に技術協力にも関与する予定の大学から派遣された団員(教員)とともに、施設の基本設計、各学科の機材選定に関する部分について、UNHAS 側への助言、円借款プロジェクトに関わるコンサルタントとの意見交換を実施する。

こうした協議の内容、施設建設・機材選定、円借款によるフェローシップと技術協力との一体的な実施の内容を含む M/M の署名を行う。

なお、案件形成の事前の情報収集という形で、2007 年 8 月に UNHAS 工学部の視察を行っている。報告内容は付属資料 4 を参照のこと。

１－２　調査団構成

総括	JICA　国際協力専門員	堤　和男
高等教育	JICA　国際協力専門員	白川　浩
工学教育（建築学科）	九州大学新キャンパス計画推進室　教授	坂井　猛
工学教育（土木学科）	九州大学工学研究院建設デザイン部門　教授	日野　伸一
工学教育（地質学科）	九州大学工学研究院地球資源システム工学部門　准教授	今井　亮
工学教育(電気･電子学科)	豊橋技術科学大学電気電子工学系　教授	長尾　雅行
工学教育（機械学科）	豊橋技術科学大学機械システム工学系　准教授	柳田　秀紀
工学教育（海洋学科）	広島大学大学院国際協力研究科開発科学専攻　教授	山下　隆男
工学教育（海洋学科）	広島大学大学院国際協力研究科開発科学専攻　教授	肥後　靖
アドバイザー	九州大学国際交流推進室　特任教授 （JBIC より出向、九州大学の予算にて派遣）	飯島　聰
アドバイザー	前インドネシア　高等教育総局長	Dr. Satryo Soemantri
協力企画	JICA 人間開発部第 2 グループ技術教育チーム職員	奥本　将勝

以下、関係者は現地インドネシアから参加。

- 高等教育政策アドバイザー　太田　慎一
- JICA マカッサル・フィールドオフィス　副総括　徳丸　周志
  プログラムオフィサー　Ida Gosal selaku

（注）UNHAS 工学部は 6 学科に及ぶため、国内協力大学にてコンソーシアムを形成する形で、豊橋技術科学大学、九州大学、広島大学より本邦の教授を派遣した。同大学を選定した理由として、学術交流協定の締結（九州大学は近日中に締結予定）、UNHAS 工学部からの過去の留学生受け入れ数、円借款プロジェクトの長期フェローシップの受け入れ予定大学、UNHAS 工学部との関係が構築されていることが挙げられる。

1-3　行程

No.	月日	曜日	堤客員専門員、白川客員専門員、奥本	サトリオ前DGHE	九州大学(国際交流推進部・飯島先生)	九州大学(土木・日野先生、地質・今井先生、建築・坂井先生)	豊橋技術科学大学(機械・柳田先生、電気・電子・長尾先生)	広島大学(経済・肥後先生、山下先生)
1	3/4	火	白川客員専門員、奥本 成田　⇒ジャカルタ、スカルノ 堤客員専門員　バンコク　⇒　シンガポール ⇒　⇒ジャカルタ		飯島先生 福岡　⇒　シンガポール⇒ ジャカルタ			
2	3/5	水	午前　10:00　BAPPENAS 午後　15:00　DGHE　16:30　JBIC駐在員事務所 17:30　JICA事務所 夜　ジャカルタ、スカルノ　⇒ウジュン・パンダン		午前～午後　JICAインドネシア事務所、JBIC駐在員事務所、高等教育総局、BAPPENAS訪問、PCIジャカルタオフィス訪問 夜　ジャカルタ、スカルノ　⇒ウジュン・パンダン	坂井先生 福岡　⇒成田 成田　⇒　ジャカルタ、スカルノ ジャカルタ、スカルノ　⇒ウジュン・パンダン		
3	3/6	木	午前　10:00～副学長表敬　大学幹部との意見交換 午後　13:00～　6学科全体協議 15:00～　南スラウェシ州　地域開発局長ルスラン氏との打合せ	調査団参加	午前　10:00～　副学長表敬　大学幹部との意見交換 午後　建築学科との打合せ	午前　10:00～　副学長表敬　大学幹部との意見交換 午後　建築学科との打合せ		
4	3/7	(休)	午前～午後　資料整理	↓	午前　資料整理 午後　建築学科との打ち合わせ、建設予定地見学	午前　資料整理 午後　建築学科との打ち合わせ、建設予定地見学		
5	3/8	土	午前～午後　セミナー参加	↓	午前　セミナー参加 午後　コンサルタントとの打合せ、建築学科との打合せ	坂井先生 午前　セミナー参加 午後　コンサルタントとの打合せ、建築学科との打合せ 今井先生、日野先生 福岡　⇒成田 成田⇒ジャカルタ、スカルノ　⇒　ウジュン・パンダン	長尾先生、柳田先生 中部国際空港　⇒成田 ⇒ジャカルタ、スカルノ　⇒　ウジュン・パンダン	山下先生　関西空港　⇒シンガポール ⇒ジャカルタ、スカルノ ⇒　ウジュン・パンダン 肥後先生　広島空港　⇒成田 ⇒ジャカルタ、スカルノ ⇒　ウジュン・パンダン
6	3/9	日	午前　建築学科協議結果の取りまとめ 午後　13:00～　調査団内打合せ 15:00～建設予定地見学	↓	午前　建築学科協議結果の取りまとめ 午後　13:00～　調査団内打合せ、建設予定地見学	坂井先生 午前　協議結果の取りまとめ⇒団内にて確認 ウジュン・パンダン ⇒ジャカルタ、スカルノ 今井先生、日野先生 午後　13:00～　調査団内打合せ、建設予定地見学	午後　13:00～　調査団内打合せ、建設予定地見学	午後　13:00～　調査団内打合せ、建設予定地見学
7	3/10	月	午前　工学部長、副工学部長との協議 午後　資料整理、団内協議	ジャカルタにて別業務	午前　工学部長、副工学部長協議 (午後　学科別協議に適宜参加)	坂井先生　⇒成田　⇒福岡 今井先生、日野先生 午前～午後　学科別協議	午前～午後　学科別協議	午前～午後　学科別協議
8	3/11	火	午前　9:00～　団内打合せ 午後　M/M作成	↓	9:00～　団内打合せ 午前～午後　学科別協議の支援	9:00～　団内打合せ 午前～午後　学科別協議	9:00～　団内打合せ 午前～午後　学科別協議	9:00～　団内打合せ 午前～午後　学科別協議
9	3/12	水	午前　11:00～　学長表敬 午後　13:00～　M/M作成への協議 夕刻　調査団協議	調査団参加	午前　学科別協議 午後　協議結果の取りまとめ 夕刻　調査団協議	午前　学科別協議 午後　協議結果の取りまとめ 夕刻　調査団協議	午前　学科別協議 午後　協議結果の取りまとめ 夕刻　調査団協議	午前　学科別協議 午後　協議結果の取りまとめ 夕刻　調査団協議
10	3/13	木	午前　工学部長、副学部長、M/M署名 午後　13:00　コンサルタント　プレゼンテーション 終了後　コンサルタントとの打ち合わせ、団内打合せ	↓	午前　工学部長、副学部長、M/M署名 午後　13:00　コンサルタント　プレゼンテーション 終了後　コンサルタントとの打ち合わせ	午前　学科別協議、M/M署名 午後　13:00　コンサルタント　プレゼンテーション 終了後　コンサルタントとの打ち合わせ	午前　学科別協議、M/M署名 午後　13:00　コンサルタント　プレゼンテーション 終了後　コンサルタントとの打ち合わせ	午前　学科別協議、M/M署名 午後　13:00　コンサルタント　プレゼンテーション 終了後　コンサルタントとの打ち合わせ
11	3/14	金	白川客員専門員、奥本 午前　ジャカルタへ移動　10:00　大使館訪問 午後　13:30　JICAインドネシア事務所 堤客員専門員、白川客員専門員、奥本 ウジュン・パンダン　7:05　⇒　ジャカルタ、スカルノ　8:20 白川客員専門員　⇒　ジャカルタ　⇒(翌日成田) 堤客員専門員　ジャカルタ　⇒　シンガポール	↓	午前　ジャカルタに移動(堤客員専門員、白川客員専門員、奥本と同便) 午後　ジャカルタに移動もしくはJICAインドネシア事務所、JBIC駐在員事務所、高等教育総局訪問、PCIジャカルタオフィス訪問	午前　予備 午後　学科別最終協議(講義授業・フィールドワーク含む)	午前　予備 午後　学科別最終協議(講義授業・フィールドワーク含む) 柳田先生　ウジュン・パンダン　⇒バリ、デンパサール　⇒	午前　予備 午後　学科別最終協議(講義授業・フィールドワーク含む)
12	3/15	土	白川客員専門員 ⇒成田 奥本　予備日 ジャカルタ⇒ 堤客員専門員 シンガポール　⇒名古屋(中部)		ジャカルタ　⇒シンガポール	午前　資料取りまとめ ウジュン・パンダン　バリ、デンパサール	柳田先生　⇒バリ⇒関西国際空港 長尾先生　ウジュン・パンダン　⇒ジャカルタ　⇒シンガポール	肥後先生、山下先生 ウジュン・パンダン　⇒　バリ、デンパサール
13	3/16	日	奥本 ⇒成田		シンガポール⇒福岡	バリ、デンパサール JL 716⇒関西国際空港　⇒福岡	長尾先生　⇒　シンガポール SQ 672　中部国際空港	山下先生、肥後先生 バリ、デンパサール⇒関西国際空港 新幹線にて広島に移動

１－４　主要面談者

（１）国民教育省高等教育総局(DGHE、Ministry of National Education)

・局長 Fasil Jajal

（２）南スラウェシ州地域開発計画局

・局長　S. Ruslan

（３）UNHAS 関係者

・学長　Prof. Dr. dr. Idrus A. Paturusi

・副学長(学術担当)　D.A. Suriamiharja

・副学長(開発、計画、協力担当) Dwia Aries Tina

（４）UNHAS 工学部関係者

・工学部学部長　Prof. Dr. Ir. Muh. Salah Pallu

・工学部副学部長　Wahyu Piarah

・電気･電子学科長　Project Implementation Unit(PIU) Head(技術協力プロジェクト担当)
Dr. Ir.Zahir Zainuddin

・土木学科教員　Project Implementation Unit(PIU) Head(円借款プロジェクト担当)
Dr. Ir. Rudy Djamaluddin

（５）円借款プロジェクト(施設・機材選定)に係るコンサルティングサービス実施コンサルタント

（ア）（株）パシフィックコンサルタンツインターナショナル

・宮武　一弘　氏

・黄　國鳳　氏

・下瀬　哲郎　氏

・渡辺　荘太郎　氏

・澤下　理恵　氏

（イ）インテムコンサルティング（株）

・田島　薫　氏

（６）在インドネシア日本大使館：　野口　健　一等書記官

（７）JBIC ジャカルタ駐在員事務所：　谷本　信賢　駐在員

（８）JICA インドネシア事務所：

・坂本　隆　　所長

・富谷　喜一　次長

・割石　俊介　所員

第２章　調査結果

UNHAS 工学部の強化に関する基本方針、機材計画、協力計画などについて協議した。協議結果に基づき、3 月 13 日(木)に、UNHAS の Idrus A. Paturusi 学長 と堤総括の間で、協議結果につき M/M を締結した。M/M の詳細は付属資料 1. ミニッツを参照のこと。調査結果の概要は以下のとおり。

２－１　工学部強化にかかる基本戦略

第一次事前評価調査の期間内に以下の5点を先方と確認した。

（１）工学部は 15 年の間に研究志向の学部になる。

（２）工学部の教育体制整備では、教育能力の向上を優先的に行う。

（３）（日本の）研究室ベースの教育研究システムを工学部に適用する。

（４）研究の成果は教員の意欲によって左右されるものであり、単に機材や予算のみに影響されるものではない。

（５）工学部は地域産業との連携を通じて東部インドネシアへの貢献を行う。

基本戦略については、先方との協議に加え、3 月 8 日には工学部の教員を対象に「教育体制の基盤構築」と「インドネシアにおける高等教育機関の役割」をテーマにワークショップを行い、工学部教員に対する情報提供を通じて研究室ベースの教育研究システムの理解を深めた。詳細は付属資料 2 ワークショップ　“Sharing Basic Concept of Education & Research System for Engineering Faculty”　資料を参照のこと。

２－２　プロジェクトの基本計画

２－２－１　プロジェクト期間

本プロジェクト期間を 3 年とすることで、先方と合意した。協力期間 5 年で要請されているところを 3 年の協力計画として提案した理由として、高度な知見を持つ人材の育成と組織能力の強化を目指す本プロジェクトでは長期的な目標の達成に向け成果を着実に積み重ねることが重要と考えられることから、広範な内容が盛り込まれている要請内容を踏まえつつも、内容を整理し明確な目標のもと活動を実施できるように比較的短期間の協力計画を立てる方がよいと判断される。これにより、インドネシア側に目標達成へのインセンティブを与えながら、JICA としてもそれぞれの段階（協力期間）の終わりにプロジェクトの評価を適時に行い、当該期間の目標達成度や課題を確認することが可能となり、現場の状況により適した対応が可能になる。

具体的には、第 1 段階（3 年間）では教育面での基盤整備のための活動を中心に行い、第 2 段階（3～5 年間）では教育面の基盤をさらに強化させつつ、研究面での基盤整備のための活動を中心とする。そして第三段階（3～5 年間）では、研究面の基盤をさらに強化させるための活動を中心とすることで、長期的な目標の達成を図るというビジョンを描くことが可能である。

協議の結果として、第一次事前評価調査では、プロジェクト実施（3 年計画）に関する日本側の考えをインドネシア側に説明した結果、インドネシア側の理解を得られた。第二次事前調査（2008

年 8 月）に向けて、関係者間で協議を進めながら具体的なプロジェクト体制、活動を検討する予定である。

２－２－２　専門家の派遣

長期専門家(チーフアドバイザー、業務調整)および短期専門家の派遣について、先方と合意した。

（１）長期専門家(チーフアドバイザー、業務調整)

・チーフアドバイザー：大学運営支援、教育・研究基盤体制作り。

・業務調整：学部運営支援、プロジェクト運営の補助。

（２）短期専門家(2 週間×年 2 回×6 学科)

・カリキュラムやシラバスの改定を活動の中心とし、教育・研究の基盤を整備する。

２－２－３　技術協力プロジェクト実施に向けた今後の予定

（１）2008 年 8 月に 2 回目の事前評価調査を行い、PDM を作成する。2009 年 1 月のプロジェクト開始を目指し、2008 年 10 月に R/D を締結する予定。

（２）専門家 2 人（総括、業務調整）の人選についても、同時に調整を進める。技術協力開始後も円借款プロジェクトとの一体的実施が求められるため、JICA の直営方式にて実施をすることを検討する。

２－３　円借款プロジェクトとの一体的実施

第一次事前評価調査期間中に、技術協力プロジェクトと円借款プロジェクトとの一体的実施を目的として、UNHAS 工学部の意向を理解し、オーナーシップを尊重しつつ、フェローシップ、施設建設、機材選定について先方に助言を行った。なお、機材選定にかかる助言については、２-５ 学科別協議結果に記載した。

２－３－１　フェローシップ

円借款プロジェクトのコンポーネントとして、教員へのフェローシップ・リサーチプログラムを以下の 3 形態で実施している。

（１）日本の大学との共同研究のためのリサーチプログラム：6 ヵ月の期間にて 3 バッチ、28 人程度を派遣予定。

（２）本邦長期研修：博士過程に 26 名程度を 2 バッチに分けて派遣予定。2008 年 9 月より研究員として、第 1 バッチの教員が国内留学先へ派遣。

（３）インドネシア国内：博士課程に 28 人程度を 2 バッチに分けて予定。バンドン工科大学、スラバヤ工科大学等に派遣。

円借款プロジェクトの本邦短期リサーチプログラム（6 ヵ月）実施に際しては、一体的実施の一環として、技術協力プロジェクトの活動内容や技術協力プロジェクトの国内支援大学との連携を重視することで先方と合意した。

第二次事前評価調査では、本邦短期リサーチプログラムの第一バッチの参加者の選定につき、

UNHAS 工学部側に助言を行う予定である。ただし、2008 年 8 月の選定にて、10 月以降の派遣に間に合うかどうか、UNHAS 側に引き続き確認が必要である。

なお、長期研修については、第一バッチの候補者は既に選定済み。2008 年 9 月より研究員として各大学に派遣される予定。第二バッチについても学科レベルでは、候補者がほぼ決定しており、各人の希望大学との調整を進めているとのことである。派遣先については必要に応じて情報提供を行っていく予定である。

２－３－２　施設建設

一体的実施の一環として、UNHAS 工学部教員も含める形で、円借款プロジェクトについてコンサルタントからプレゼンテーションが 3 月 14 日に行われ、調査団員は地域の気候・地震などの自然条件への対応、経費、建設後の維持費、工学部キャンパスの特殊性への配慮など、施設建設に関する助言を行った。調査終了後、コンサルタントと UNHAS 側にて以下の点について、引き続き協議が行われた。

（1）UNHAS と協議して改善を加えた項目
各学科の建物にそれぞれワークショップを設置、ペデストリアンデッキのテントの設置場所を限定する点。

（2）現在、施設建設の基本設計で協議中の項目
建物そのもののデザインや、学生や教員のたまり空間の設置。

（3）UNHAS と協議したが、変更するに至らなかった項目
エレベーターの設置、共用建物（COT、図書館、その他）の位置や、中央図書館の必要性など。これまで UNHAS 側とコンサルタントの間で協議を重ねて決めた結果であり、UNHAS 側としても納得しているので、特に変更の必要なしとの結論に至った。

（4）今後、施設建設における基本設計および詳細設計で協議する項目
ソーラーパネルの部分的設置や複層ガラス窓の設置を 2 重扉の設置に変える等の検討。

２－３－３　円借款プロジェクトの機材選定、施設建設にかかる関わり方について

標記について、関係者（UNHAS 側、コンサルタント、JBIC 駐在員事務所）に確認し、承諾された。

（1）コンサルタントから提出される四半期毎の報告書(または関連する報告書)の共有。

（2）機材リストとその入札、仕様書作成期間においては、引き続き、国内協力大学の教官や学部の協力を得つつ、機材計画のフォローアップを行うべく、基本的にはメールでの対応、必要に応じて TV 会議を行いつつ、助言を行うこと。

（3）施設建設に関して、機材の納入が施設建設より先行する点、建設予定地の準備に時間を要している点を十分に勘案し、円借款プロジェクトと技術協力プロジェクトが円滑に行われるよう、施設建設と機材据付のタイミングを考慮しつつ、配慮すべき事項などについて、関係者に適宜助言を行うこと。

２－４　東北インドネシア地域の産業との連携

南スラウェシ州 S. Ruslan 地域開発計画局長(3 月 6 日に訪問)より、地域の関心事項について以下の説明があった。

（1）農業：原料はココア、海老、カシューナッツ、海草(化粧品)、シルク、ウィート。国内輸送としては、コーン、米、キャッサバがあり。加工技術が必要である。

（2）セメント産業：ドナサセメント、ボナサセメント(公営企業)といった企業あり。

（3）造船業（小規模）：東部インドネシア地域を結ぶ輸送能力の強化。

（4）インフラ：産業基盤の整備(円借款プロジェクトにてダム、港湾整備の実績あり)、農業産業、生産工学の発展のニーズが高い。

UNHAS の Suriamiharja 副学長から地域開発にかかる大学の特徴としては「地質」「鉱物」「海洋」という説明があった。東部インドネシア地域の 30 大学を集めた委員会を UNHAS の指導の下で活性化させたいという発言があった。

２－５　学科別協議結果

第一次事前評価調査期間中に日本の大学教官を派遣し、UNHAS 工学部 6 学科(土木、建築、機械、電気・電子、海洋、地質)の教官とともに、以下の目的で学科別協議を実施した。各学科の協議結果は参考資料のとおり。

- 各学科の基礎情報、教育・研究体制、シラバス・カリキュラムの確認、学科の基本方針の内容確認。
- 円借款プロジェクトにて行われている機材選定に関する機材リストの内容への助言。

なお、機材リストの内容への助言について、使用頻度が低いことが予想される機材、学科による重複のある機材、メンテナンスにコストが係る機材について、各学科の教員に変更の提案がなされた。さらに、助言した内容について円借款のコンサルタントへの情報収集を行った。調査後、調査団が作成した報告書や修正後の機材リストは工学部側と共有し、工学部側はこれ以降、修正後の機材リストをもとに、コンサルタントと調整を行うこととした。各分野担当の団員からは、各学科の教員の能力の差異が大きい点、学科の方向性と選定される機材のマッチングが異なる点が指摘された。

２－６　総括所感

堤総括が作成した調査所感は以下のとおり。

学長、副学長（－１、－４）、工学部長、副工学部長、PIU メンバー、各学科教員、および南スラウェシ州地域開発計画局長などとの協議およびセミナー（Sharing Basic Concept of Education & Research System for Engineering Faculty）を行った。また、チームに参加している日本の教員（九州大学 4 名・広島大学 2 名・豊橋技術科学大学 2 名）による 6 学科教員との JBIC 円借款で購入予定の実験研究設備・機材の妥当性および教育研究体制の構築に関わる協議も行われた。

（1）副学長（－１、－４）、工学部長との協議

一つの収穫は UNHAS の特徴として強化すべき分野が、「地質工学」「鉱物」「海洋工学」の３つ

が挙げられたことである。JICA としてピンポイントの援助になる場合には総花的な対応が困難なだけに参考にすべき意見である。なお、南スラウェシ州地域開発計画局長からは農業産業の重要性とこれに伴う「生産工学」に関わる UNHAS への期待が表明された。これらは 2007 年 8 月の訪問時に「地域の特徴」として挙げられた、「鉱物」「農業」「海洋資源」「製造」と整合している。

（２）大学の教育研究体制

多くのスタッフが「研究をしたいが設備・資金がない」という不満が聞かれたが、セミナーでは研究への熱意が第一で設備・資金は二の次であることを強調した。チームにアドバイザーで加わっているインドネシア高等教育局前総局長であるサトリオ氏からも、「Sophisticated Equipments」を使うのが研究ではなく研究経費がなくても自作の装置を使って測定を行うのが教育･研究であるという講演があった。

また、研究大学へ将来進むには Lab-based 教育・研究の導入、つまり講座（研究室）のような「研究グループ」を永続的に形成し、学生を所属させてグループでの教育研究体制を構築する必要性を述べた。日本で修士・博士号を取得した教員が 10 数名（例えば、副学長－1、工学部長）いて、特に工学部長の発言もあってこの体制を受け入れることが了承された。しかし、「徐々に変革」という若いスタッフの発言にみられるように現状打破という気概は希薄である。

しかし、研究指向を有すスタッフがかなり少ない（例えば、建築工学で 10%、電気工学で 30%）現状では研究活動の果たす教育への効果を明らかにすることから始める必要性がある。日本で修士・博士号を取得した教員は日本の状況を熟知しているはずだが、日本では大学院の研究生活のみに従事するので教育研究体制の把握にはいたっていない感じである。

（３）機材の選択

チームの日本人教員による JBIC 円ローンにより設置される教育研究機材の妥当性が各学科でなされた。

結論から言えば、すべての学科で不適切な選択が非常に多いことが指摘された。使用頻度が著しく低いことが予想される機材（例えば、地質工学科の岩石年代測定装置、海洋工学科の巨大な造波タンクなど)、付属品をそろえていない機材、学科による重複、など研究経験の低いスタッフが無理矢理そろえたのが実像である。こういうプロジェクトでは先方側のオーナーシップが必要という議論がなされるが、このような現状をみると疑問を感じざるを得ない。時間的制約もあり購入設備の 100%の修正は困難だと思われる。今後、JBIC/JICA の合併がなされると類似の形態が多く起こると思われるため、早い時期での専門家による点検が必要である。

各学科共通使用の機材のための共用スペースの設置についても議論を行った。いかに共通の機材でもどこかの学科が購入しそこに所属させるというのが「Culture」であり、工学部長も学部で管理するという主張であった。この「Culture」の打破なくしては、ブレークスルーはないと思われる。

（４）建物・施設・機材に関わる問題点

校舎・施設の建設計画がコンサルタントから紹介された。

校舎などは「建築設計」という観点からは工夫されたものであろうが、地域の気候・地震などの自然条件、経費、維持費、使用する人への配慮、工学部であることなどの観点からは妥当なものかどうか疑問が残る。地震については比較的頻度は少ない地域らしいが、耐震性に重点を置いたという発言はなかった。また、雨量・湿気などの条件がどこまで考慮されているのか、さらに建築後の維持費は当然先方の負担になるが、そのための配慮が感じられない。共通の施設が必ずしも中央に配置されていないこと、また工学部であることの特殊性が考慮されていない、などの問題点も残る。

機材は2008年3月末までに決定され6月～10月までに入札に入る予定であるが、校舎・施設が完成する前に納品されるような事態への対応はどうなっているのか疑問である。新キャンパスの用地は確保されているが既存の建物の撤去のめどはたっておらず、建築が予定どおり行われない場合、新しい建物への納入はかなり後になる可能性が高い。

今回のプロジェクトでは契約上このような形にならざるを得ないのであろうが、今後の類似のプロジェクトでは建物の完成、機材の納入という時間軸を明確にしておく必要がある。また、機材も一度にすべてを決定するのが妥当とは言えない。

機材決定・入札にかかわるコンサルタントは1人だけが今後4ヵ月現地に滞在とのことである。工学系の専門知識も不十分なようで東京と相談しながら進めるという話であったが、先方スタッフの今後の活動に相応しい機材選定や複雑な機材の仕様の決定など工学系機材に求められる過程としては非常に脆弱である。今回のチームの大学教員が短期間に献身的に行った努力が無駄にならないことを祈りたい。本来ならばJBICが日本の大学と契約して早い段階で教員派遣をして適切な機材選定を進めておけばこのような事態は避けられたはずである。

校舎・施設はもとより多くの工学系機材は多額の維持費を要するものが多い。先方の自助努力と言えばそれまでだが、それがかなわず単なる陳列物になる可能性も高く今後の類似のプロジェクトでは早い段階で解決すべき課題である。

（５）JICAの投入

PIUメンバーとJICAの投入計画についての議論を行った。

最初はカリキュラム・シラバスの改訂、教材の改訂などから行うことを提案したのに対し、メンバーの間での合意が必ずしも十分ではないことが判明した。学科による相違も見られるため、PDMの作成もJICA側から案を提案し、事前にPIUの議論を十分に行わせる必要がある。

（６）結論

昨年訪問した時に比べてUNHAS側の体制も改善され、一般的には意欲も十分にうかがうことができる。日本留学者がかなりいることも追い風ではあるし、今回のチームにサトリオ氏がアドバイザーとして加わったことも議論を進める上で有効であった。しかしながら、建物・機材が円借款で行われそれがかなり進んだ段階でJICAチームが派遣されたわけだが、時期として遅すぎたという懸念が残る。前述したように、機材などは今後のJICA活動に密接に関係するものであり、JBICによる早い時期での大学教員派遣が実現できなかった影響は大きいかもしれない。

付属資料

１　ミニッツ

２　ワークショップ“Sharing Basic Concept of Education & Research System for Engineering Faculty”資料

３　収集資料

- インドネシア大学教員・学生比較表
- ハサヌディン大学工学部 Development Plan
- ハサヌディン大学工学部本邦留学経験教員リスト
- ハサヌディン大学工学部学術交流協定先リスト
- ハサヌディン大学工学部発表資料（2008 年 3 月 6 日）
- ハサヌディン大学工学部学科別 Study Program

４　ハサヌディン大学工学部視察（2007 年 8 月）報告資料

MINUTES OF MEETING
BETWEEN
THE JICA STUDY TEAM
AND
THE AUTHORITIES CONCERNED OF
HASANUDDIN UNIVERSITY
FOR
~~THE DEVELOPMENT OF~~
THE ENGINEERING FACULTY OF THE HASANUDDIN UNIVERSITY
(UNHAS)

The JICA Study Team (hereinafter referred to as "the Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), headed by Dr. Kazuo Tsutsumi conducted a preliminary study from March 4th to March 16th, 2008, for the purpose of the implementation of the Technical Assistance for the Development of the Engineering Faculty of the Hasanuddin University(hereinafter referred to as "the Technical Cooperation Project") which is closely linked with the Yen-Loan "Hasanuddin University Engineering Faculty Development Project"(hereinafter referred to as "the Yen-Loan Project").

During its stay in Republic of Indonesia, the Team had a series of discussions with the Authorities Concerned of Hasanuddin University of Engineering Faculty, jointly developed idea and exchanged views on the two projects.

As a result of the discussions, both sides agreed the matters referred to in the document attached hereto.

Makassar, March 13, 2008

Prof. Dr. Tsutsumi Kazuo
Leader
Study Team
Japan International Cooperation Agency,
Japan

Prof. Dr. dr. Idrus A. Paturusi
Rector
University of Hasanuddin
Republic of Indonesia

THE ATTACHED DOCUMENT

1. Basic view and strategy of the engineering faculty of UNHAS in the future

As a result of discussions and one-day seminar, both sides shared the following view and strategy.

(1) In 15 years the faculty will be research oriented faculty.

(2) Enhancement of educational system in the faculty should be the first priority.

(3) Lab-based system with layout as in ANNEX1 is suitable for the faculty.

(4) Research performance should be based on strong intention not on the equipment and budget.

(5) Contribution to regional development for the Eastern Indonesia through linkage with local industry is necessary.

The engineering faculty of UNHAS will take necessary measures to ensure the above concept through revising faculty's strategy and action plan.

2. Tentative Outline of the Technical Cooperation Project

2-1 General idea for the Technical Cooperation Project

The Team suggested and the faculty staffs understood the general idea as follows.

The Technical Cooperation Project will focus on the support to establish the basis of education and research system of the engineering faculty of UNHAS for the first three years. Along with the Yen-Loan Project, the Technical Cooperation Project will contribute to enhance the capacity of the faculty, mainly focus on revising curriculum and syllabus to establish the credit system comparable with international standards.

2-2 Idea of schedule for the implementation

The Team suggested and the faculty staffs understood the idea of schedule for the implementation shown in ANNEX 2. The suggested idea will be explained to the people concerned in JICA HQ and will be examined.

2-3 Image of major input

The Team suggested and the faculty staffs understood the tentative image of input by the project as follows. The idea is subject to change within the scope of Record of Discussion for the Technical Cooperation Project, when necessity arises, in the course of project implementation.

〈Japanese Experts〉

JICA will dispatch two Long Term Experts for the Technical Cooperation Project. The roles of them are as follows.

(1) Chief Advisor

1) Advisor on education and research system of the faculty.

2) Advisor on the university management.

(2) Coordinator

~~1) Advisor on faculty management~~

2) Coordinator to smooth implementation of the project

In addition to the Long Term Experts, JICA will dispatch two Short Term Experts for each department basically twice per year for the purpose of the capacity development of engineering Education.

The Team and the faculty staffs shared the view that the utilization of Research student in Fellowship component of the Yen Loan Project should have effective linkage with the dispatched Experts and Japanese University Staffs concerning the Technical Cooperation Project.

3. Output of advisory meeting with each department

The Team and the faculty staffs conducted the advisory meeting for each department of the faculty. They exchanged idea of the strategy and shared the idea of their near future direction. The Team advised to revise the proposed list of equipments through exchanging ideas with the person concerned. Hereafter, the faculty staffs will complete to revise the equipment lists based on the advices of the Team.

4. Others

The Team suggested and the faculty staffs understood that the committee composed by the person authorized in higher education in Indonesia including DGHE should be established.

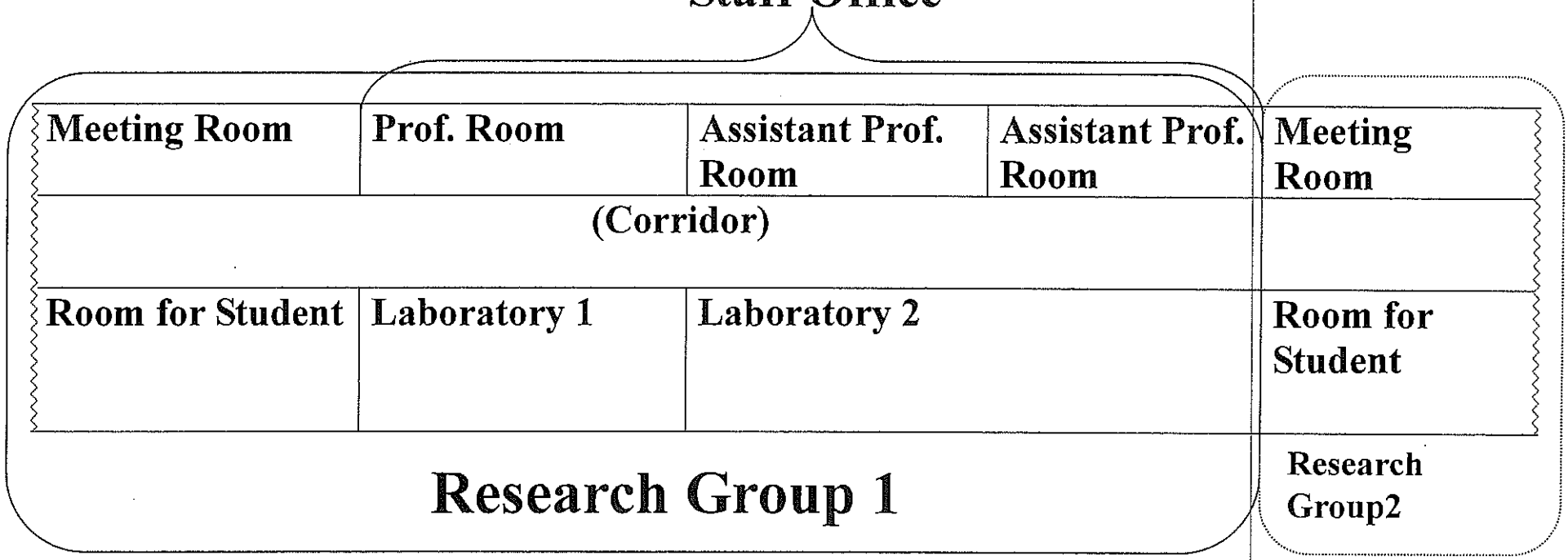
ANNEXS

ANNEX 1. Image of Lab-Based System Layout

ANNEX 2. Idea of schedule for the project implementation of the Development of the Engineering Faculty of the Hasanuddin University

ANNEX 1. Image of Lab-Based System Layout

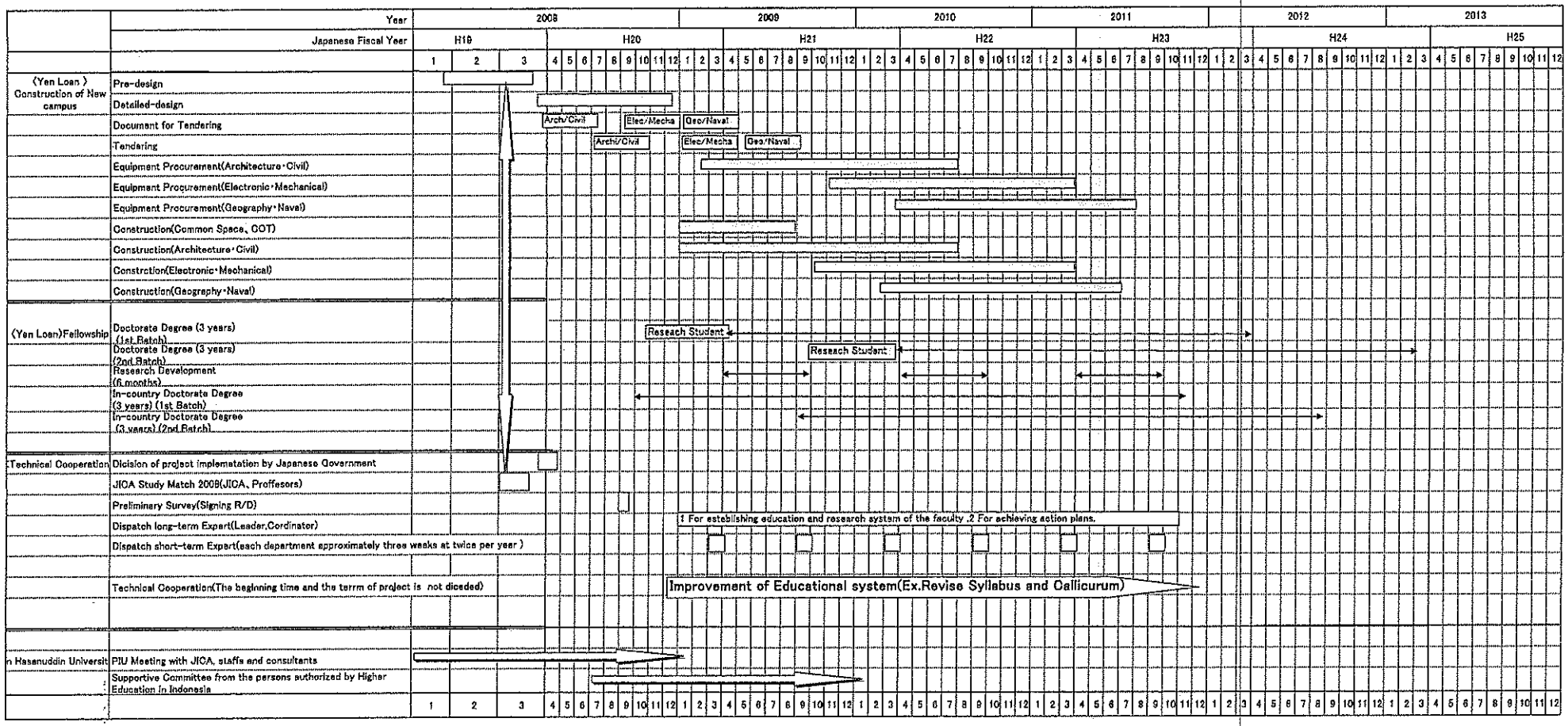
【Office Space】



1. Department Organization consists of several Research Groups which has same interests.
2. Each Department Member belongs to one of Research Groups.

Idea of schedule for the project implementation of the Development of the Engineering Faculty of the Hasanuddin University

ANNEX 2
JICA Study Team



JICA Study Team
8 Mar 2008

~The preliminary study for enhancement of
Engineering Faculty of Hasanuddin University (UNHAS) in Indonesia~

Seminar for “Sharing Basic Concept of Education & Research System for Engineering Faculty”

Date: 8 Mar 2008, 9:30～
Place: SAHID JAYA Hotel Seminar Room 2

1. Presentation“Feature of Higher Education/Research for Engineering in Japan and Q&A (9:40~10:40)
From JICA Study Team
Presenter: TSUTSUMI Kazuo JICA visiting senior advisor

Tea Break (10:40~11:00)

2. Presentation “Higher Education in Future Indonesia” and Q&A (11:00~12:00)
From JICA Study Team
Presenter: Satryo S. BROJONEGORO

Lunch Break 12:00~13:00(Brain Storming in the faculty staffs)

3. Free Discussion “How do we establish the system for education and research? (13:00~ Until finish)
(1) Discussion for sharing concept with laboratory system and basic concept for Education & Research between the faculty of engineering and JICA
(2) Comments and Suggestion from JICA study team

4.Closing Remarks:

Feature of Higher Education/Research for Engineering in Japan

March 8, 2008

Makassar

JICA Study Team

1

Mission of Universities

- Education
- Research
- Social Service

  Linkage with Industries
  Linkage with Community
  International Linkage

2

Engineering Education

Engineering Education in 21st Century

- Globalization
- International Standard
- Inter/Multidisciplinarity
- Information Technology

3

- Revolution in Agriculture: ～10,000 years
- Revolution in Industry: ～200 years
- Revolution in IT: ～20 years

4

Research Linkage with Industries

Linkage with industries

Industries supported by universities

- Collaborative research
- Entrusted research

Universities supported by industries

- Donation

5

Task of University for Research Linkage with Industries

- Dissemination of research activities
- Mediation between Seeds and Needs
- Technological Consultation
- Seminar and consultation on Patents
- Research Linkage Coordinator

6

Laboratory-based Education and Research

7

Serious requests from society ?

↓

Graduates with

Practical Knowledge and Experience
to be Engineers / Researchers

↓

Providing

Enough time for Experiment / Exercise

How ?

8

Providing various kinds of opportunities to expose students to research atmosphere

To give basic discipline for engineers

Type of Lab work	Feature	Suitability
Classroom base	**・Min. 20 Up to 50 students / theme ・Difficult to use high spec equipment**	**Basic ~ Intermediate (1st ~ 2nd year of S1)**
Laboratory base	**・Max. 10 students / theme ・Easy to use high spec equipment**	**Intermediate ~ Advance (2nd ~ 3rd year of S1)**

To give basic experience for researchers

Type of Lab work	Feature	Suitability
Laboratory base	**・Max. 3 students / theme ・Easy to use high spec equipment**	**Intermediate ~ Advance (4th year of S1 or more)**

9

Structure of the Department

• Consisting of Several Research Groups

Space

• *Experiment/Research Laboratories Space*
Common Classrooms with Equipments for Undergraduate Students
Common Laboratories with Common Equipments
Laboratories belonged to each Research Group
• *Individual Office for Senior Staff*
• *Office for Young Staff*
• *Office for Students*
• *Classroom*
• *Office for Administrative Staff*

10

Example: Department of Materials Science

Research Group based on Research/Education Theme

- Organic Synthesis
- Polymer Chemistry
- *Composite Materials Chemistry*
- Separation Chemistry
- Analytical Chemistry
- Biochemistry
- Catalytic Chemistry
- Inorganic Synthesis
- Materials Strength

11

Staff of 1 Research Group
- Professor 1
- Associate Professor 1
- Assistant Professor 1
- Technician 1/3

Students of 1 Research Group
- PhD course 2-5
- Master course 6-12
- Bachelor course 3-6
- Post Doctorate 0-3

Space of 1 Research Group
- Laboratories belonged to Research Group
- Office for staff
- Office for students

12

Roles of Each staff

Professor
- Administration (University, Department)
- Lecture
- Research Supervision
- Research Budget

Associate Professor
- Lecture
- Research Supervision
- Research Budget
- Research

Assistant Professor
- Research Supervision
- Research

13

Education/Research Activities of Research Group

- Research
- Colloquium: once/week
- Participation in Academic Conferences
- Publication of Research papers

14

Lab-Based Education

- Number of Experiment / Excises for 3rd year of S1 →12-20 topics are necessary

Ex.

- For 40 students
- 5-6 (students) X 6-8 (research groups)
- 2-3 small group per 5-6 students
- 1-2 month per research group
- For one year (8 months)
- 3 times per week, 1 time per 3.5 hours

15

- Do you think Lab-based system will be suitable for UNHAS engineering faculty?

16

- If so, can UNHAS make research group system organization?

17

Future Engineering Higher Education in Indonesia

Satryo S. Brodjonegoro
Advisor – JICA Study Team

1

Introduction

- Nation's competitiveness
- ICT revolution
- Innovative and responsive
- Role of higher education : train qualified and adaptable workforce ; generate new knowledge ; access and adapt global knowledge to local use

2

Development of Engineering Higher Education

- Contributing to the creation of knowledge
- Reducing dependence on foreign experts
- Developing capacity to sustainable exploration of natural resources
- Developing the needed technology for local and national industries
- Developing import substitution and improving added value of export products
- Improving health and social well being
- Developing qualified researchers

3

Provision of Knowledge and Skills

- Balance between the short term needs of the labor market and the long term benefit from soft skills as a future investment.
- Familiarize with the tension of innovation and emotional difficulties during his/her interaction with society.
- Effective distance education should have well designed delivery method suitable for a well targeted segment of population and should apply a rigorous quality assurance mechanism.

4

Excellence

- Excellence requires adequate resources
- The importance of greater public funding to support higher education
- Institutions should continuously improve the efficiency and effectiveness
- Expansion should only be justifiable if there is clear demand from the market force
- Placing industrial communities as educational partners will flourish the study relevance

5

Existing Condition

- Majority of the student population is in the academic stream which can comprise up to 90%.
- Increasing number of unemployed graduates due to mismatch in quality or standard the requirement of the world of work and the university product.
- The contribution of the higher education leavers in the work force is less than 2 %.
- Entrepreneurship is considered as one of the means to improve graduates employability.

6

University and Industry Collaboration

- Relevance in higher education can be improved by conducting appropriate collaborations between the university and industry.
- There are many factors beyond the control of the university and industry which still create mismatch and then contribute to unemployment.
- Most likely that the knowledge taught in the institution becomes obsolete.

7

Industry Collaboration

- Based on mutual benefit
- University provides experts and industry provides technology & facilities
- Co-op program
- Internship program
- Joint research and development program
- Scholarships and assistantships

8

Industry Collaboration (2)

- Benefit for the university : updating the state of the art in science & technology ; promotion of entrepreneurial program ; improvement of relevance
- Benefit for the industry : cost-effective in R&D ; recruit the appropriate graduates ; maintain employee quality through continuous training

9

Research Awards (related to technology transfer)

- Research award for junior staff
- Basic research award
- Collaborative research award
- Competitive research award
- Research award for graduate program
- University-industry strategic research award

10

University-Industry Strategic Research (2005)

- High productivity transgenik cane through fitalase gen transfer from bacteria (IPB)
- Multimedia E-kiosk for community information service (ITB)
- Development of village access unit at multimedia ICT networking for tropical area (ITS)
- Development of biofloculan product as new material for industrial liquid waste treatment (UPI)
- Development of biodiesel technology (ITB)

11

Industrial and Service Enterprise Unit (2002 – 2006)

- Processing of Intellectual Property Right, dissemination of scientific publications and application of technology (ITB)
- Design consultancy (ITS)
- Dentistry laboratory service (USU)
- Industrial electronic module development (ITB)
- High quality plantation extract industry (ITB)
- Agro-industry (Brawijaya)

12

Strategic Approach

- The university should act as the basic knowledge provider for the stakeholders
- The information obtained from the labor market will be beneficial for the university to determine the kind of basic knowledge to be developed and delivered to the students.
- There is an interesting trend to increase community participation in financing higher education.
- In many cases institutions are over –invested, particularly in physical and human resources beyond their capacity to utilize and maintain.

13

Collaboration Centers

- Taiwan Technology Parks
- Sophia Antipolis-Technology Park The “French Way”
- Cambridge-Incubator for Innovation
- Munich-The Hidden Champion : Creating an entrepreneurial culture
- Silicon Valley : The Magnetic Force
- Stockholm : “The High Speed Globile Innovations Community”

14

Quality of Engineers

- Based on the existing regional or international standards
- ABET (Accreditation Board for Engineering and Technology) is widely used worldwide

15

Incentive for Industry

- Industry will look for a location with high quality human resource, infrastructure availability, clear legal process, and political stability
- University can provide high quality human resources in accordance with the need of the industry

16

Industrial Development

- Shanghai was selected over Singapore and Hongkong to establish a pump factory by US investor
- Bangalore was chosen for software development by US investor as Business Process Outsourcing

17

Success of India

- University credibility
- Cost competitiveness
- English
- Talented scholars
- Time difference advantage
- Hard working culture
- Government support

18

Good Luck

19

Number of Student & Lecturer at Facutly of Engineering of UNHAS, ITB, UGM and ITS in 2005

January 4, 2006

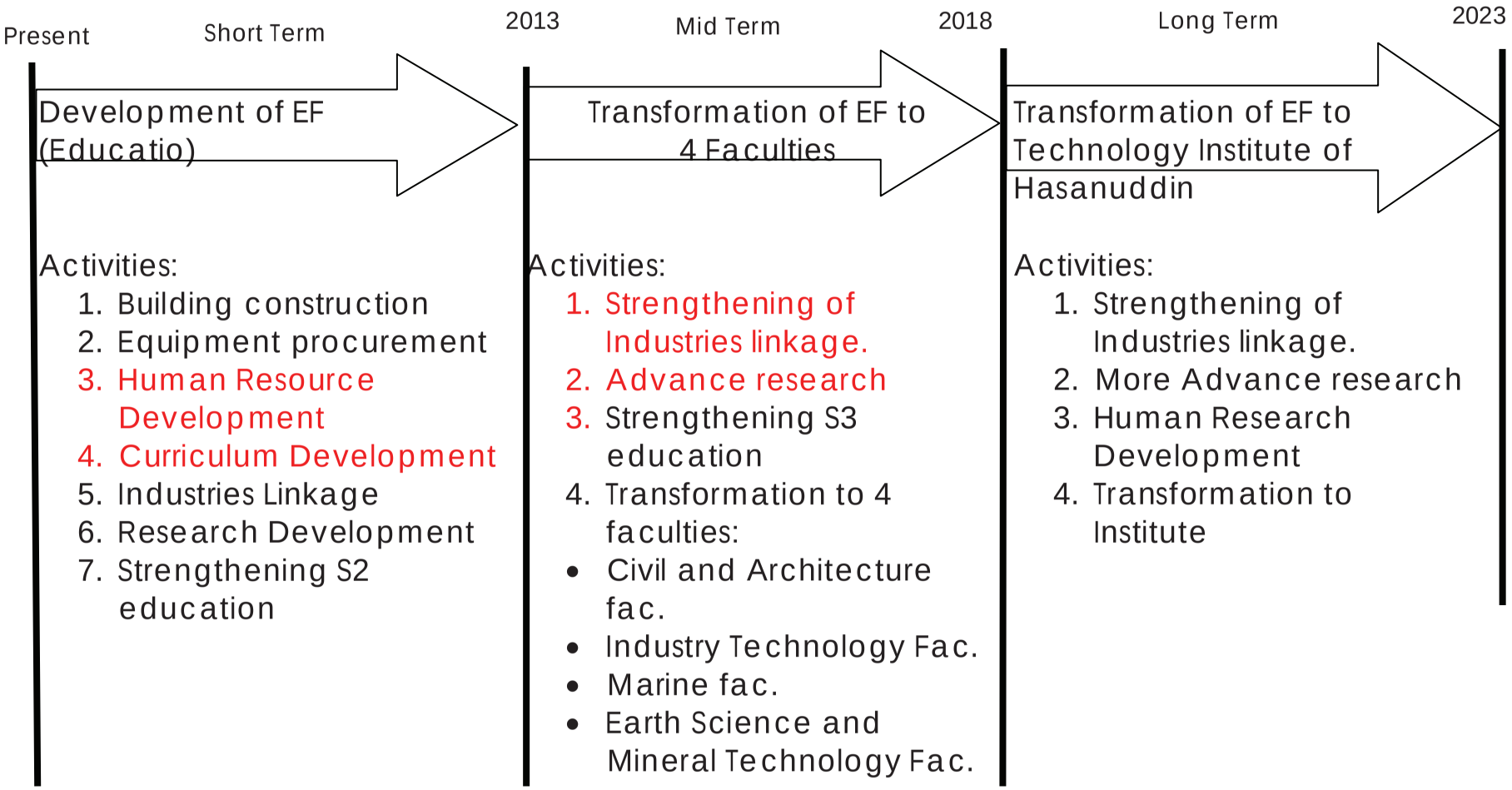
No.	Name of University	UNHAS (Hasanuddin University)							ITB (Bandung Institute of Technology)						UGM (Gadjah Mada University)							ITS (Surabaya Institute of Technology)						
	Faculty of Engineering	Total of student				Total of lecturer			Total of student			Total of lecturer			Total of student				Total of lecturer			Total of student				Total of lecturer		
	Department/Study Program:	Dip	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3	Dip	S1	S2	S3	S1	S2	S3	Diploma	S1	S2	S3	S1	S2	S3
1	Aeronautics	-	-	-	-	-	-	-	275	30	7	-	16	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Architectural Engineering	74	675	185	-	17	35	7	409	97	11	3	30	13	33	870	453	14	5	22	19	-	492	88	13	15	27	7
3	Chemical Engineering	-	-	-	-	-	-	-	466	62	3	3	5	24	-	130	32	7	6	13	22	280	785	31	13	18	27	16
4	Civil Engineering	84	666	109	-	22	32	6	701	197	53	2	34	57	451	1,188	302		8	34	41	854	853	175	9	32	72	14
5	Electrical Engineering	69	570	65	-	24	23	7	994	275	54	12	31	46	645	1,186	220	20	30	31	7	290	1,357	171	7	46	31	16
6	Environmental Engineering	-	-	-	-	-	-	-	394	86	9	1	10	24	-	-	-	-	-	-	-	-	461	79	-	5	20	7
7	Geodesy Engineering	-	-	-	-	-	-	-	285	80	13	3	17	15	156	630	51	-	5	26	3	-	191	-	-	7	4	3
8	Geological Engineering	-	462	25	-	10	17	3	317	73	12	1	12	18	-	516	67	2	8	22	7	-	-	-	-	-	-	-
9	Geophysical Engineering	-	-	-	-	-	-	-	172	-	-	2	2	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Geophysics & Meteorology	-	-	-	-	-	-	-	233	28	16	3	12	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Highway Engineering & System	-	-	-	-	-	-	-	-	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Industrial Design Product	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	685	-	-	15	10	1
13	Industrial Engineering	-	-	-	-	-	-	-	673	168	16	-	15	29	-	-	-	-	-	-	-	-	626	74	-	12	17	7
14	Information System Engineering	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	263	-	-	5	8	1
15	Information Technology	-	-	-	-	-	-	-	567	137	12	1	20	11	-	-	-	-	-	-	-	-	794	101	-	19	10	4
16	Instrumentation & Control	-	-	-	-	-	-	-	-	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Material Engineering	-	-	-	-	-	-	-	237	26	2	-	-	-	-	-	-	-	-	-	-	-	201	-	-	9	5	2
18	Mechanical Engineering	84	877	47	-	19	23	11	787	82	11	1	12	41	749	1,802	136	10	24	44	19	317	949	74	-	27	31	18
19	Mining Engineering	-	-	-	-	-	-	-	429	65	8	-	8	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	Naval Engineering	-	-	-	-	-	-	-	208	7	-	-	-	-	-	-	-	-	-	-	-	-	300	104	-	11	11	11
21	Oceanography	-	-	-	-	-	-	-	116	37	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Petroleum	-	-	-	-	-	-	-	302	43	4	2	2	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	Physical Engineering	-	-	-	-	-	-	-	453	8	11	-	6	27	-	461	6	-	4	24	5	165	546	-	-	14	23	4
24	Planology	-	-	-	-	-	-	-	-	-	-	1	21	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Region & City Planning	-	-	-	-	-	-	-	381	132	13	-	-	-	-	-	-	-	-	-	-	-	190	-	-	5	5	2
26	Shipbuilding Engineering	46	642	10	-	17	23	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	487	-	29	11	15	8
27	Shipbuilding System Engineering	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	471	-	-	5	22	3
28	Transportation	-	-	-	-	-	-	-	-	19	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Water Resource Engineering	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Management Technology																							443				
31	Engineering Science				23																							
TOTAL :		**357**	**3,892**	**441**	**23**	**109**	**153**	**37**	**8,399**	**1,742**	**271**	**35**	**253**	**405**	**2,034**	**6,783**	**1,267**	**53**	**90**	**216**	**123**	**1,906**	**9,651**	**1,340**	**71**	**256**	**338**	**124**
				4,713			**299**			**10,412**			**693**				**10,137**			**429**				**12,968**			**718**	
Teacher : Student		**15.76254181**							**15.02453102**						**23.62937063**							**18.06128134**						

Note:

ITB student is devided based on study program , whereas the lecturers devided into department. Therefore, there are some students seem have no lecturer . Those study programs as part of departments as followings :

1 Region & City Planning : department of planology
2 Material Engineering : department of mechanical engineering
3 Naval Engineering : departement of civil engineering
4 Oceanography : department of geophysics & meteorology
5 Highway Engineering & System : department of civil engineering
6 Instrumentation & Control : department of electrical engineering
7 Transportation : department of civil enginering
8 Water Resource Engineering : department of environmental engineering

Development Plan of Engineering Faculty (EF) UNHAS



ALUMNI DATA GRADUATED FROM JAPAN, LECTURERS OF ENGINEERING UNHAS

No.	Name	University	Department	Year of Graduated		Promotors		Continous Contact w/promotors
				S2	S3	S2	S3	
1	Prof.Dr.Ir.Muh.Saleh Pallu,M.Eng.	Kyushu	Civil	1991	1994	Prof.Dr.Hirano Muneo	Prof.Dr.Hirano Muneo	Yes
2	Prof.Dr.Ir.Lawalenna Samang,M.Eng.	Saga	Civil	1994	1997	Prof.Dr.N.Miura	Prof.Dr.N.Miura	No
3	Dr.Rudy Djamaluddin,ST,M.Eng.	Kyushu	Civil	1999	2005	Prof.Dr.Ohta Toshiaki	Prof.Dr.Ohta Toshiaki	Yes
4	Dr.Wihardi Tjaronge,ST.,M.Eng.	Nagoya Inst. Techno	Civil	1999	2002	Prof.Dr.Kawabe Shinji	Prof.Dr.Kawabe Shinji	Yes
5	Dr.Mukhsan Putra Hatta,ST.,MT.	Kyushu	Civil	-	2007	-	Prof.Dr.Komatsu	Yes
6	Miranda Runturambi,M.Eng.	Kyushu	Civil	1987	-	Prof.Dr.Hirano Muneo	-	Yes
7	Prof.Dr.Ir.Ananto Yudono, M.Eng.	Kyushu	Architecture	1985	1989	Prof.Dr.Kenji Mitsuyoshi	Prof.Dr.Kenji Mitsuyoshi	Yes
8	Prof.Dr.Ir.Muh.Ramli Rahim,M.Eng.	Kyushu	Architecture	1991	1994	Prof.Dr.Hiroshi Nakamura	Prof.Dr.Hiroshi Nakamura	Yes
9	Dr.Ir.Victor Sampebulu,M.Eng.	Kysuhu	Architecture	1983	1986	Prof.Dr.Taiji Saji	Prof.Dr.Yasuno Matsufuji	Yes
10	Dr.Ir.Ria Wikantari R.,M.Eng.	Osaka	Architecture	-	2001	-	Prof.Dr.Kunihiro Narumi	Yes
11	Prof.Dr.Ir.Hammada Abbas,MSME	Kobe	Mechanical	1982	-	Prof.Dr. Shindo Akio	-	No
12	Prof.Dr.Ir.Syamsul Arifin,M.Eng.	Ibaraki & Tohoku	Mechanical	1982	1985	Prof. Noboru Suita		No
13	Prof.Dr.Ir.Yusuf Siahaya,ME	Yokohama National	Mechanical	1982	-	Prof.Dr. Oguri Tatsu	-	No
14	Dr.Rafiudim Syam,ST.,M.Eng.	Saga	Mechanical	2002	2005	Prof.Keigo Watanabe	Prof. Keigo Watanabe	Yes
15	Prof.Dr.Ir.Muhammad Tola,M.Eng.	Kagoshima & Kobe	Electrical	1982	1985	Prof.Dr.Yamuguchi Junichi	Prof.Dr.Hiroshi Bo	No
16	Dr.Ir. Zulfajri Basri Hasanuddin, M.Eng	Kyushu	Electrical			Prof. Mitsuo Tateiba	Prof. Mitsuo Tateiba	No
17	Prof.Dr.Ir.Muh.Alham Djabbar,M.Eng.	Hiroshima	Naval		-	Prof. Dr. Ihsaaki Harada	-	No
18	Ir.Mansyur Hasbullah,M.Eng.	Tokai	Naval	1987	-	Prof.Dr.N.Yokoyama		No
19	Ir.Lidya Salam, M.Eng.	Toyohashi	Mechanical	1983		Prof. Takeshi Saito		No
20	Dr.Ir. Daeng Paroka, M.Eng.	Kobe	Naval	2007				NIY
21	Ir.Muhammad Ramli,MT.	Osaka	Geology		OG		Prof. Yuzo Ohnishi	Yes
22	Tri Harianto,ST.MT.	Saga	Civil		OG		Prof.Hayoshi Stigoneri	Yes
23	Merna Baharuddin,ST.,MSc.	Chiba	Electrical		OG		Prof. Josephat Tetuko	Yes
24	A.Arwin,ST.,MT.	Kyushu	Civil		OG		Prof. Shinice Hine	Yes
25	Syafaruddin,ST.,MSc.	Kumamoto	Electrical		OG		Prof. Takashi Hiyama	Yes
26	Amil Ahmad Ilham,ST.,MSc.	Kyushu	Electrical		OG		Prof. Kyoko Murakami	Yes

27	Muhammad Niswar,ST.,MInfo.	Nara Inst. Techno.	Electrical		OG		Prof. Suguru Yamaguchi	Yes
28	Prof.Dr.Ir.H. Haruna Mappa (Dec.)	Tokyo	Geology		1982			No
29	Ir.Syamsu Alam Tompo, M. Eng. (Dec.)	Kobe	Naval		1982			No
30	Ahmad Yasir Baeda, ST.MT	Hiroshima	Naval		OG		Prof. Yasushi Higo	Yes
31	Faisal, ST	Osaka	Naval	OG				NIY

Notes: OG = On Going
Dec = Deceased
NIY = No Information yet

07.Nov

LIST OF INTERNATIONAL COOPERATION CONDUCTED BETWEEN UNHAS AND JAPAN UNIVERSITIES

ハサヌディン大学　学術交流協定リスト (一部工学部のみ締結の可能性あり)

NO	UNIVERSITY	YEAR OF COMMENCE	YEAR OF ENDED
1	TOKYO UNIVERSITY OF SCIENCE	2005	2010
2.	CHIBA (環境リモートセンシング研究センター)	3 September 2007	3 September 2012
3.	SAGA	2007	2012
4.	RYUKOKU	2005	2008
5.	KEIO	2006	2011
6.	EHIME	2006	2011
7.	HIROSHIMA	1997	2002
8.	TOYOHASHI UNIVERSITY OF TECH	2006	2011
9.	TOYOMA MADICAL & PHARMACEUTICAL	2002	2007
10	KYUSHU (参考：2008 年 11 月九州大学工学部との間にて締結)	2007 (On Planning) Will be sign Nov 07	

HASANUDDIN UNIVERSITY ENGINEERING FACULTY DEVELOPMENT PROJECT

By : Project Implementation Unit

1

Objective of the Project

Enhancing educational and research capacity both in quality and quantity of Hasanuddin University Engineering Faculty through;

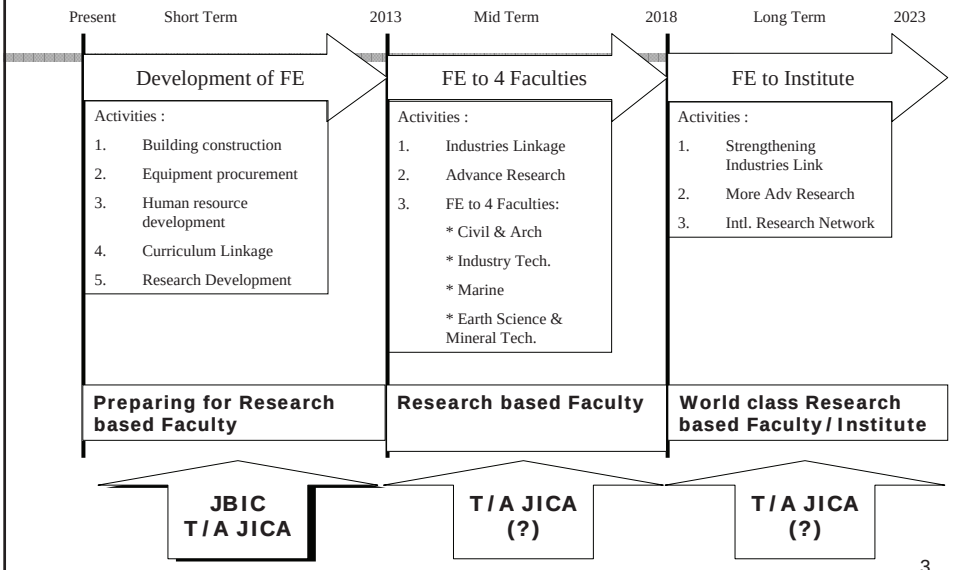
- Developing new campus and necessary facilities,
- Teaching/Research capacity and curriculum

With a view to developing industrial and academic human resources in Indonesia, as well as contributing to regional development of eastern Indonesia.

Develop Gowa Campus as a Center of Technology

2

Development Plan of Engineering Faculty (EF) UNHAS



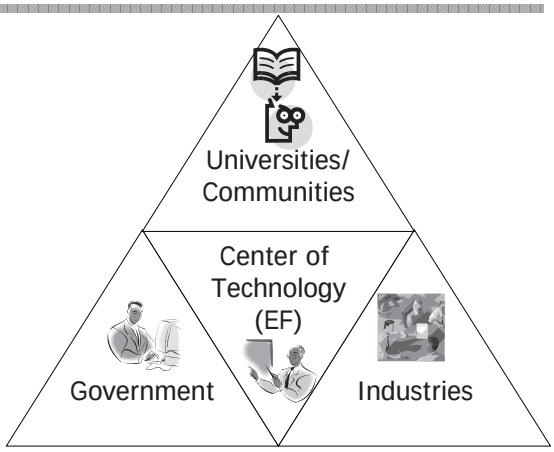
3

Development scope:

Item	Existing	Gowa Campus
No. of Faculty	1	1
No. of Department	6	6
No. of Study Program	11	12
No. of Laboratories	62	78
No. of Student	4,189	5,824
S1	3,871	4,560
S2	298	1,060
S3	20	204
No. of Lecturer (min.)	301	456
Floor Area (m2)	20,797	78,578
Equipment Items	-	1,052

4

EF as the Center of Technology



5

JBIC Project Components

- Construction of Buildings including Infrastructure Development
- Procurement and installation of equipment and furniture
- Fellowship and Training Programs

6

JICA T/A Components

- Curriculum Development
- Human Resource Development
- Industry Linkage Development
- Advance Research Development

7

Buildings Construction

- Central Government and JBIC ODA Loans (64,155 sqm)
  - Classrooms, Laboratories, Administration Office, Lecturer Room
  - Dean Office, Centre of Technology, Computer Centre, Lecturer Theatre, Laboratory for Basic Science and Workshop
- Local Government (14,423 sqm)
  - Library, Students Centre, Indoor Auditorium, Sport Hall, Public Service, Canteen and Regional Development Centre

8

Procurement and Installation of Equipment and Furniture

- Central Government and JBIC ODA Loans
  - Education and Research Equipment (1,052 items)
  - Education and Research Furniture
- Local Government
  - Administration and other supporting facilities Furniture

9

Fellowship and Training Programs

- Overseas Fellowship and Training Programs
  - Post Graduates Degree (26 persons)
  - Non-Degree (Research) (28 persons)
- In-country Fellowship and Training Programs
  - Post Graduates Degree (28 persons)

10

Project Implementation Schedule

Activity	2007				2008				2009				2010				2011			
Selection of Consultants																				
Detailed Design																				
Tendering																				
Buildings Construction																				
Infrastructure Development																				
Equipment Procurement																				

Total Project Cost (Million JPY)

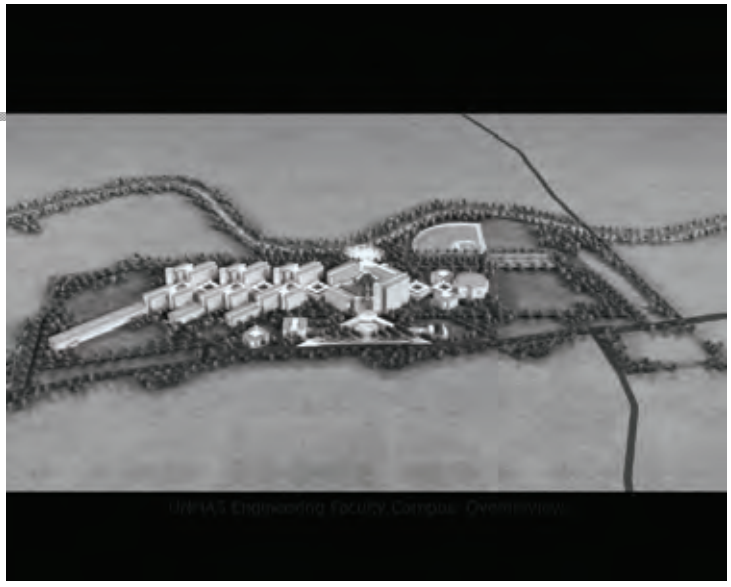
Item	Total	JBIC Loan	Central Gov't	Local Gov't
Building Construction	4,344	2,579	1,105	659
Equipment & Furniture	2,929	2,848	0	81
Fellowship Program	487	487	0	0
Price Escalation	866	597	157	112
Physical Contingency	407	305	59	43
Consulting Services	1040	985	0	55
Land Acquisition	248	0.0	248	0
Administration Cost	211	0.0	211	0
Tax and Duties	959	0.0	864	95
Grand Total	**11,491**	**7,801**	**2,644**	**1,045**

2008 Schedule

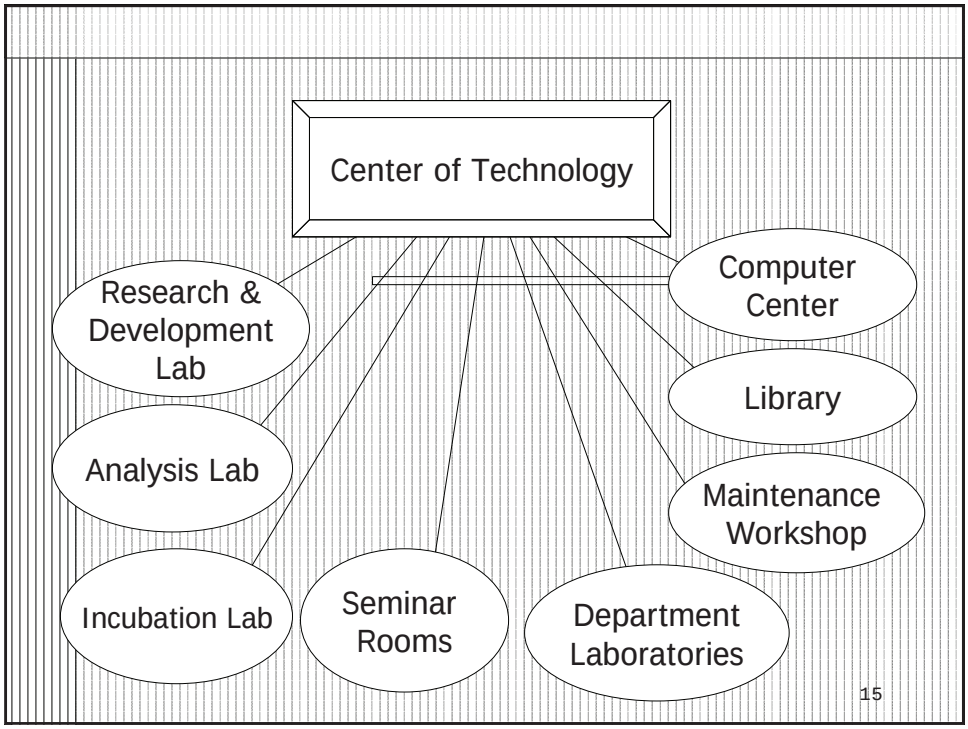
- Design
- Tendering of the Contractor (P-1)
- Fellowship Program #1 Batch (12 S3 program to Japan, 10 Research program to Japan and 12 S3 program in Indonesia)
- Curriculum Development/Human Resource Development (JICA T/A)

13

New Campus of the FE-UH



14


Center of Technology
Research & Development Lab
Analysis Lab
Incubation Lab
Seminar Rooms
Department Laboratories
Computer Center
Library
Maintenance Workshop
15

List of Sheets

No.	Study Program	Department	Faculty
1	Marine Engineering	Shipping	Engineering
2	Shipping System Engineering	Shipping	Engineering
3	Shipping Engineering	Shipping	Engineering
4	Architecture	Architecture	Engineering
5	Regional & Urban Development	Architecture	Engineering
6	Electronics	Electronics	Engineering
7	Machine Engineering	Machine	Engineering
8	Industrial Engineering	Machine	Engineering
9	Civil Engineering	Civil Engineering	Engineering
10	Geology Engineering	Geology	Engineering
11	Mining Engineering	Geology	Engineering

1. Department: Shipping Study Program: Marine Engineering Year of Establishment: August 10, 2001

<table>
<tr><td></td><td></td><td colspan="3">Main Subjects</td></tr>
<tr><td>Vision</td><td>To produce scholars (S1 degree) in the field of Coastal and harbor engineering and Offshore Engineering with capability to develop the science in their fields.</td><td colspan="3">Semester I : Religious education, Indonesia Language, Perspective of Science and Technology, Calculus I, Physics I, Engineering Drawing, Marine Construction Materials, Computer Basics.
Semester II : Pancasila, English, Socio-cultural Perspective of Marine, Calculus II, Physics II, Fluid Mechanics, Engineering Mechanics I.</td></tr>
<tr><td>Mission</td><td>1 To produce scholars in the field of Marine Engineering to work to develop the nation based on Pancasila (Five Principles) and to maintain the unity of nationalism as well as to be devoted to the Almighty God.
2 To conduct research and development in the field of Marine Engineering relevant the national and regional development
3 To be one of education center and source of information related to of Coastal and Harbor Engineering and Offshore Engineering both at national and regional levels.</td><td colspan="3">Semester III : Citizenship, Engineering Mathematics, Ship Construction, Engineering Mechanics II, Statistics & Probability, Hydrograph, Hydrodynamics
Semester IV: Numeric Method & Programming, Structure Analysis, Harbor, Wave Theory, Sea Geology, Concrete construction, Soil Mechanics,
Semester V: Offshore Structural Planning, Intermediate Concrete Construction, CAD,
Semester VI: Offshore Structure Construction, Structure Optimation, Element Method, Sea pollution and Safety, Coast Protection Structure, Connection Technology.
Semester VII (For Offshore Engineering Sub-study Program) : Construction Management, Coastal process, Structure Dynamics, Modeling and Scaling Test, Offshore Structure Technology, Equipment & Piping System, Quay Construction,
Semester VII (For Coast and Harbor Engineering Sub-study Program): Construction Management, Coastal process, Structure Dynamics, Modeling and Scaling Test, Quay Construction, Excavation & Reclamation
Semester VIII: Seminar of Engineering Tasks, Field Practice, Thesis Seminar, Co-curricular, Social Service.</td></tr>
<tr><td></td><td></td><td colspan="3">- Drawing and planning studio, - Reading hall, - Computer center
- Marine Engineering Laboratory,</td></tr>
<tr><td>Special Features</td><td colspan="4">This Study Program was originally a Sub-study Program of Off-shore Structure, Shipping Department of Hasanuddin university. This Study program is composed of two concentrations of sub-study programs: (1) Off-shore Engineering and (2) Coast and Harbor Engineering)</td></tr>
<tr><td rowspan="4">Teaching Staffs (Permanent)</td><td>S3</td><td>2</td><td rowspan="4">Teaching Staffs (Non-Permanent)</td><td>S3</td><td>3</td></tr>
<tr><td>S2</td><td>9</td><td>S2</td><td>16</td></tr>
<tr><td>S1</td><td>0</td><td>S1</td><td>5</td></tr>
<tr><td>Total</td><td>11</td><td>Total</td><td>24</td></tr>
</table>

2. Department: Shipping **Study Program: Shipping System Engineering** **Year of Establishment: October 22, 2002**

<table>
<tr><td></td><td></td><td>Main Subjects</td></tr>
<tr><td>Vision</td><td>To produce human resources having belief on God Almighty, good character, Indonesian culture, scientific spirit, and academic & professional capability in the field of Marine Technology in general and shipping system engineering in particular.</td><td rowspan="2"><u>Semester I:</u> Religious education, Indonesia Language, Calculus I, Basic Physics, Engineering Drawing, Introduction to Shipping Technology, Mechanic Technology, Material Science.

<u>Semester II</u> : Pancasila, English, Calculus II, Basic Physics II, Engine Elements, Engineering mechanics, Ship Structure Theories, Fluid Mechanics.
<u>Semester III:</u> Citizenship, Socio-cultural Perspective of Marine, Engineering Mathematics I, Thermo-dynamics, Ship Endurance, Fluid Engine, Ship Construction, Engineering Economy.
<u>Semester IV:</u> Engineering Mathematics I, Power Generation System, Engineering Statistics, Ship Engine I, Ship Propulsion I, Numeric Analysis & Computer Programming, Alternative power/Energy Generation, Heat Conductivity.

<u>Semester V:</u> Ship Engine II, Electric Installation System & Ship Electronics, Ship Propulsion II, Auxiliary Engine, Ship Design, Piping System & Installation, Air Control & Cooling System.

<u>Semester VI:</u> Control System, Ship Engine Reparation, Reliability, Ship Engine Planning I, Marine Safety, Ship Equipment & Tools.

<u>Semester VII:</u> Ship Engine Planning II, Vibration of Ship Engine System, Engine Transmission System, Research methodology, Field practice, CAD/CAM

<u>Semester VIII:</u> Obligatory Social Service, Seminar of Designing Tasks, Seminar, Thesis.</td></tr>
<tr><td>Mission</td><td>1 .In Research
To develop new science and technology, research and thinking as well as update of knowledge and capability in making use of systems in applying the science and technology for advancement and prosperity of the community.
2. In Civil Service and Institutional Development to accommodate changes
To disseminate results of applied researches, studies, and actions or appropriate technologies especially in the field of shipping system engineering and engine to be utilized for productive activities and quality improvement in marine technology</td><td>Facilities
- Drawing studio,
- Ship Engineering Laboratory,
- Library
- Computer laboratory
- Hydro-dynamic laboratory</td></tr>
<tr><td>Special Features</td><td colspan="2">As the engineers, graduates of Shipping System Engineering Study Program are able to behave and adapt to any environment so that they are able work in their respective engineering fields as well as maintenance of ship driving system, installation system in the ship and system in offshore structures..</td></tr>
</table>

Teaching Staffs (Permanent)	S3	:	4	Teaching Staffs (Non-Permanent)	S3	:	3
	S2	:	15		S2	:	2
	S1	:	3		S1	:	0
	Total	:	22		Total	:	5

3. Department: Shipping Study Program: Shipping Engineering Year of Establishment: July 10, 2005

		Main Subjects
Vision	To become implementer of education and marine technology development as the pillar of marine culture of the Archipelago.	***Semester I*** : Religious education, Indonesia Language, Perspective of Science and Technology, Basic Mathematics I, Basic Physics I, Engineering Drawing, Introduction to Shipping Engineering . ***Semester II*** : Pancasila, English, Socio-cultural Perspective of Marine, Basic Mathematics II, Basic physics II, Engineering Mechanics I, Ship Theories.
Mission	1 To produce graduates with good moral and capability to face any challenge and to make use of marine technology. 2 To support and develop the marine community with motivation and technology touch. 3 To become a partner for marine industry development 4 To provide education and training service in the fields of marine technology and maritime.	***Semester III*** : Citizenship, Engineering Mathematics I, Engineering Mechanics II, Statistics, Hydromechanics, Material technology, Ship Pre-designing, Engineering economy ***Semester IV*** : Engineering Mathematics II, Engineering Mechanics III, Hydro-statistics of Ship, Ship Construction I, Installation of Ship engine, Ship Equipment, Wood/non-steel Ship, Corrosion. ***Semester V (for Built-up Plan Sub-study)*** : General Plan and Tonnage, Ship Construction II, Transversal Strengths, Ship Endurance, Ship Vibration, Installation of Ship Electric, Welding Technology, Ship/Boat. ***Semester V (for Sea Transportation Sub-study*** : General Plan and Tonnage, Ship Construction II, Transversal Strengths, Ship Endurance, Ship Vibration, Sea Transportation System, Simulation and Modeling, Decision Analysis. ***Semester VI (for Built-up Plan Sub-study)*** : Dockyard management, Longitudinal Strengths, Ship propulsion, Technique of Ship Production, Emerge and Partition Ship Side, Ship Dynamics, Fishery Boat/Ship, Computer-based Design. ***Semester VI (for Sea Transportation Sub-study)*** : Emerge and Partition Ship Side, Longitudinal Strengths, Ship Propulsion, Technique of Ship Production, Ship Dynamics, Transportation Economy, Transportation Planning, Logistic Management. ***Semester VII (for Built-up Plan Sub-study)*** : Stability and Trim, Technique of Ship Reparation, Ship launching, Maritime Safety, Research Methodology, Technical Specification of Ship Testing, Production Management. ***Semester VII (for Sea Transportation Sub-study)*** : Stability and Trim, Technique of Ship Reparation, Ship launching, Maritime Safety, Research Methodology, Ship Operational Planning, Line Management, Harborship. ***Semester VIII*** : Co-curricular, Practical Work, Social Service (KKN) seminar of Ship Designing, Thesis Seminar, Thesis.
		Facilities '- Drawing and planning studio, - Marine Engineering Laboratory, - Library, - Computer center
Special Features	This Study Program is composed of two concentrations or sub-studies: Built-up Plan and Sea Transportation. Separated vocational subjects of respective sub-programs are provided from Semester V to Semester VII..	

Teaching Staffs (Permanent)	S3	4	Teaching Staffs (Non-Permanent)	S3	0
	S2	16		S2	0
	S1	6		S1	0
	Total	26		Total	0

4. Department Architecture **Study Program: Architecture** **Year of Establishment: September 10, 1963**

		Main Subjects
Vision	To become a professional, excellent, and outstanding institution of education, research and social service in the field of archipelagic tropical architecture in the Southeast Asia Region.	***Semester I:*** Religious education, Indonesian Language, Perspective of Socio-cultural of Marine, Introduction to Architecture, Technique of Architecture presentation & Communication, Art Appreciation, Building Materials, Engineering Mechanics, Engineering Mathematics I, Environment Knowledge. ***Semester II*** : Pancasila Education, English, Perspective of Science and Technology, Architecture Development I, Theories on Architecture I, Building Mechanics, Engineering Mathematics II, Esthetics of Patterns, Structure and Construction of Building I. ***Semester III*** : Citizenship Education, Architecture Development II, Theories on Architecture II, Measurement & Mapping, Physics of Building, Structure and Construction of Building II, Studio of Architecture Design. ***Semester IV*** : Co curricular, Techniques of Scientific Writing, Urban and Settlement theories, Settlement Designing, Integrated Studio I.
Mission	To educate students to become candidate architects who understand their profession; to improve the quality of graduates to develop as intellectual community members who are able to achieve highest science; to produce graduate with spirit and self-reliance to maintain commitment for architecture development	***Semester V*** : Laws of Development Institution, Urban Architecture, Integrated Studio II, Selected Subjects. ***Semester VI*** : Project Management, Ethics of Architecture Profession, Integrated Studio III, Selected Subjects. ***Semester VII*** : Profession Work practice, Colloquium, Integrated Studio IV, Social Service relevant to Profession (KKNP) ***Semester VIII*** : Final Tasks
		Facilities - Studio Room (for designing of structure & construction), - Laboratory (covering architectural design, Structure, & building construction, housing & settlement, measurement & - Library - Display Room (for display of results of architectural designs and objects related to architectural works)
Special Features	Architecture Study Program won Semi-Que Grant Program in 2003-2004, and received A2 Competition Grant Program fro Directorate general of Higher Education.	

Teaching Staffs (Permanent)	S3	:	7	Teaching Staffs (Non-Permanent)	S3	:	0
	S2	:	46		S2	:	0
	S1	:	7		S1	:	0
	Total	:	60		Total	:	0

5. Department: Architecture Study Program: Regional & Urban Development Year of Establishment: November 20, 2003

		Main Subjects
Vision	To become an excellent and outstanding institution of education, research and social service with expertise in designing and analyzing regional and urban issues by referring to archipelagic, coastal, and water areas and by making optimal use of natural resources to achieve sustainable guided environment.	***Semester I*** : Religious Education, Indonesia Language, Statistics, Spatial Planning Studio I, Introduction to Regional & Urban Planning, History of Urban Development I, Calculus, Social & Demography System, Environment Analysis. ***Semester II*** : Pancasila, English, Perspective of Science and Technology, Geology & Environment Arrangement, Social & Demography System II, History of Urban Development II, Housing & Settlement System, , Introduction to Regional & Urban Economy, Spatial Planning Studio II, Technique of Scientific Writing
Mission	1 To execute three responsibilities of institute of higher education (research, teaching and social service) through science and technology innovation leading to production of professional/qualified graduates; 2 To develop & execute study program of Regional & Urban Development to produce graduates of S1 with devotion, good moral, having Indonesian culture, scientific spirit, academic capabilities, professional capabilities, future orientation, capability to cooperate and optimal in working environment; 3 To develop and apply dynamic curriculum, accommodative to community needs, science and technology advancement, and anticipation of future; 4 To execute social service through utilization of science & technology in order to realize just and fair development; 5 To produce graduates with self-reliant spirits and potentials, commitment, to develop archipelagic tropical architecture; 6 To produce graduates with capability to analyze regional and urban issues.	***Semester III*** : Citizenship, Socio-culture Perspective of Marine, Planning Theories, Urban land use and Development, Spatial Planning Studio III, Regional & Urban Economy, Cartography & Aerial Photograph Interpretation, Introduction to transportation, Regional & Urban Infrastructure I. ***Semester IV*** : Spatial Planning Studio IV, Transportation planning, Regional & Urban Infrastructure II, Planning Issues, location Analysis & Spatial Pattern, Natural Landscape I, Track planning I, Graphic Computer. ***Semester V*** : Ecology of Water Border Area, Community Development, Spatial Planning Studio V, Natural Landscape II, Track planning II, Method of Planning Analysis I, Management and Institution of Planning, Technique of Planning Evaluation. ***Semester VI*** : Spatial Planning Studio VI, Regional Autonomy, Development Financing, Method of Planning Analysis II, Integrated Rural planning, Research method, Selected Subjects. ***Semester VII*** : Planning Information System, Planning Administration & Law, Workshop, Profession Practice Work, Selected Subjects. ***Semester VIII*** : Social Service (KKN), Final Tasks.
		Supporting Facilities: - Studio Room (for individual and team planning process, assistance activities of analysis, concepts, and planning), - Display Room (for display of results of studio works in form of planning and design of a study - Computer lab.
Special Features	Study Program of Regional and Urban Development was established in 2004/2005 as the response to globalization and technology demands.	

Teaching Staffs (Permanent)	S3	6	Teaching Staffs (Non-Permanent)	S3	0
	S2	22		S2	4
	S1	3		S1	0
	Total	31		Total	4

6. Department: Electronics Study Program: Electronics Year of Establishment: 1963

<table>
<tr><td></td><td colspan="2"></td><td colspan="3">Main Subjects</td></tr>
<tr><td>Vision</td><td colspan="2">To become the center for development and application of Electronic technology and to become an outstanding higher engineering education institution both at national and international levels.</td><td colspan="3" rowspan="2"><u>Semester I</u>: Religious Education, Indonesia Language, Socio-cultural Perspective of Marine, Perspective of Science and Technology, Calculus I, Physics I, Electric Connection I, Computer Basics, Engineering Drawing, Practice of Computer Basics.
<u>Semester II</u>: Pancasila, English, Calculus II, Physics II, Electric Connection II, Electric power Basics, Telecommunication Basics, Computer Programming, Fortran, C or Pascal, Basic Practice of Electric Power, Basic practice of Telecommunication.</td></tr>
<tr><td>Mission</td><td colspan="2">To produce professional graduates with</td></tr>
<tr><td colspan="2" rowspan="2"></td><td colspan="3"><u>Semester III</u>: Citizenship Education, Engineering Mathematics I, Engineering physics, Electric Connection III,
<u>Semester IV to VIII</u>: The subjects are suited to respective sub-study programs (not mentioned in the Leaflet due to their large number).</td></tr>
<tr><td colspan="3">Supporting Facilities:
- Electronic library
- Lecture rooms
- Student Association Office
- Mosque
- Electronic Workshops</td></tr>
<tr><td>Special Features</td><td colspan="5">Electronics Study Program manages three sub-study programs: (1) Electric Energy Engineering, (2) Telecommunication Engineering, and (3) Computer Engineering.</td></tr>
<tr><td rowspan="4">Teaching Staffs (Permanent)</td><td>S3</td><td>7</td><td rowspan="4">Teaching Staffs (Non-Permanent)</td><td>S3</td><td>0</td></tr>
<tr><td>S2</td><td>34</td><td>S2</td><td>0</td></tr>
<tr><td>S1</td><td>13</td><td>S1</td><td>0</td></tr>
<tr><td>Total</td><td>54</td><td>Total</td><td>0</td></tr>
</table>

7. Department: Machine **Study Program: Machine Engineering** **Year of Establishment: September 10, 1960**

<table>
<tr><td></td><td></td><td colspan="3">Main Subjects</td></tr>
<tr><td>Vision</td><td>To become an outstanding Machine Engineering Study Program in the fields of education, development, and application of science and engineering technology with commitment to produce reliable graduates in methalurgy, energy conversion, manufacture, and engine design, and with capability to respond to challenge of technology & information development and readiness for competition in global market.</td><td colspan="3" rowspan="2"><u>Semester I</u> : Religious Education, Indonesia Language, Basic Chemistry, Calculus I, Basic Physics, Basics of computer Program, Engineering Drawing, Concepts of Technology, Production process.

<u>Semester II</u> : Pancasila, Basic of Socio-cultural Science, English, Calculus II, Basic Physics II, Machine Drawing, Structural Statistics, Practice of Production Process I, Machine Elements I, Production process II.</td></tr>
<tr><td>Mission</td><td>1 To produce graduates with belief on deity and capability to apply and develop science in the fields of energy conversion, methalurgy, and design engineering as well as manufacture technology engineering.
2 To develop design and engineering of engine technology based on marine culture to support and stimulate process of community prosperity improvement in Indonesia
3 To empower the community through their participation in applying and developing science in the fields of energy conversion, methalurgy, and design engineering as well as manufacture technology engineering effectuvely and efficiently.</td></tr>
<tr><td></td><td></td><td colspan="3"><u>Semester III</u> : Citizenship Education, Calculus III, Tasks of Machine Elements I, Kinematics and Dynamics, Practice of Production Process II, Machine Elements II, Engineering Materials, Mechanics of Material Power I, Engineering Mathematics I.

<u>Semester IV</u> : Physical methalurgy, Engineering Measurement, Engineering Mathematics II, Heat Conductivity, Fluid Mechanics I, Thermo-dynamics, Kinematics & Dynamics II, Tasks of Machine Elements II, Machine Elements III, Mechanics of Material Power II.

<u>Semester V</u> : Mechanic Vibration, Practice of Methalurgy Iheat Conductivity II, Fluid Mechanics II, Thermodynamics II, Tasks of Machine Elements III, Machine for Material Movement, Engineering Economy, Production Engineering, Element methods, Industrial metrology.

<u>Semester VI</u> : Stechnique of Controlling, Steam Engine, Automotive Engineering, Energy Convertion Engine, Industrial Management, Machines of Tools, Cooling Machine, Selection of Materials and Process, Fluid Engine, Practice of Basic phenomena

<u>Semester VII</u> : TTL & Electronics, Engine Treatment/Care, Work Safety & Environment planning, Network Planning, Practice of Engine Achievement I, Practice of Engine Achievement II.

<u>Semester VIII</u> : Practical Work, Social Service (KKN) Scholar tasks.</td></tr>
<tr><td></td><td></td><td colspan="3">Supporting Facilities:
- Lecture Rooms
- Library
-Laboratorium (12 units)</td></tr>
<tr><td>Special Features</td><td colspan="4">Study Program of Machine Engineering is one of the oldest study programs in Engineering Faculty of Hasanuddin University. Its graduates spread throughout Indonesia in various sectors such as mining, processing industry, automotive, etc.</td></tr>
<tr><td rowspan="4">Teaching Staffs (Permanent)</td><td>S3</td><td>11</td><td rowspan="4">Teaching Staffs (Non-Permanent)</td><td>S3</td><td>0</td></tr>
<tr><td>S2</td><td>25</td><td>S2</td><td>0</td></tr>
<tr><td>S1</td><td>9</td><td>S1</td><td>0</td></tr>
<tr><td>Total</td><td>45</td><td>Total</td><td>0</td></tr>
</table>

8. Department: Machine **Study Program: Industrial Engineering** **Year of Establishment: 2001**

		Main Subjects
Vision	To become an outstanding Industrial Engineering Study Program that produce reliable graduates in engineering of industrial system.	***Semester I*** : Religious Education, Indonesia Language, Calculus I, Basic Physics I, Basic Chemistry, Engineering Drawing I, basics and Application of Computer, Introduction to Industrial Engineering, Manufacture process I, Production Process I ***Semester II*** : Pancasila, Basic of Socio-cultural Science of Maritime, English, Calculus II, Basic Physics II, Practice of manufacture process, Introduction to Economic Science, Machine Drawing, Computer programming, manufacture Process II.
Mission	1 To develop and execute Industrial Engineering Study Program so as to produce scholars (S1) with belief on deity, good moral, Indonesian culture, scientific spirit, intellectual appearance, academic capability and professional capability as well as having future orientation, and capability to cooperate and work effectively in working environment.	***Semester III*** : Citizenship Education, Calculus III, Matrix and Space Vector, Engineering Materials, Fluid Mechanics, probability Theory, Engineering Mechanics, Industrial Electronics, Engine Elements, Perspective of Science and Technology. ***Semester IV*** : Calculus of Multiple Change, Thermo-dynamics, Heat Conduction, Industrial Statistics, Environment Knowledge, Optimation, Work Design Analysis, Machine for Material Movement, Practice of Engineering Materials, Designing of Industrial Engineering I. ***Semester V*** : Introduction to Management and Business, Planning of Work System and Ergonomics, Stochastic method, Equipment and Measuring Tools, planning and Controlling of Production I, Energy Conversion Engine, Engineering Economy, Work Safety and Corporate Hygiene, Designing of Industrial Engineering 2. ***Semester VI*** : Quality Control and Planning, System Modeling, organization Design, Production Planning and Controlling 2, Product Planning and Designing, Facility layout planning, Cost Estimation Analysis, Designing of industrial Engineering. ***Semester VII*** : Computer Simulation, Analysis of Corporate Design, Supply Control, Management Information System, industrial Psychology. ***Semester VIII*** : Practical Work, Social Service (KKN), Scholar tasks.
		Supporting Facilities: - Lecture Rooms - Library -Laboratory (2 units)
Special Features	It is upgrade of Industrial Engineering Sub-Study program, Machine Engineering of Engineering Faculty, Hasanuddin University.	

Teaching Staffs (Permanent)	S3	0	Teaching Staffs (Non-Permanent)	S3	5
	S2	10		S2	8
	S1	1		S1	4
	Total	11		Total	17

9. Department: Civil Engineering Study Program: Civil Engineering Year of Establishment: September 10, 1960

		Main Subjects
Vision	Excellent education institution that produces reliable graduates with values, norms, and ethics as well as academic and/or professional capabilities so as to be able to respond to change and dynamic development of science and technology in national and international competition..	***Semester I*** : Religious Education, Indonesia Language, Basic Calculus I, Basic Physics I, Basic Chemistry, Perspective of Science and technology, Engineering and Building Structure, Programming. ***Semester II*** : Pancasila, English, Socio-cultural Perspective of Maritime, basic Calculus II, Basic Physics II, Statistics, Soil Measurement Science.
Mission	1 To produce and develop human resources with perseverance, academic and professional excellence and capability. 2 To develop and participate actively in development of science and technology. 3 To implement partnership and community service activities in togetherness and in global perspective.	***Semester III*** : Research Methodology and Scientific Writing, Engineering Mathematics I, Environment Science, Construction material Engineering, Fluid Mechanics, Transportation Engineering, Material Engineering. ***Semester IV*** : Engineering Mathematics II, Hydraulics, Structure Analysis I, Traffic engineering, Statistics/Probability, Soil mechanics, Hydrology Engineering, Environment health Engineering.. ***Semester V*** : Applied Mathematics, Numeric Analysis, Structure Analysis II, Reinforced Concrete Structure I, Concrete Structure I, Foundation Engineering, Irrigation / Water Structure, Road geometric Planning, Construction management. ***Semester VI*** : Reinforced Concrete Structure II, Concrete Structure II, Wood Structure, Road Hardening Planning, Water Resources Management, Airport Planning, PMT, Engineering Economy, Cost Engineering. ***Semester VII*** : Drainage, harbor, Pre-tense Concrete Structure, Earthquake Engineering, Practical Work. ***Semester VIII*** : Ethics, Legal Aspects, Social Service (KKN), Co-curricular subject.
		Supporting Facilities: - Laboratory (for research and application of lecture theories) - Library - Student activity rooms - Lecturers' rooms and assistance rooms
Special Features	It is the first Study Program established in the Engineering Faculty of Hasanuddin University. It has some expertise: (1) Structure, (2) Geo-technique, (3) Transportation, (4) Water, and (5) Construction Management.	

Teaching Staffs (Permanent)	S3	9	Teaching Staffs (Non-Permanent)	S3	0
	S2	40		S2	0
	S1	9		S1	0
	Total	58		Total	0

10. Department: Geology **Study Program: Geology Engineering** **Year of Establishment: 1977**

		Main Subjects
Vision	To become a center for human resources development in the field of marine-oriented geology.	***Semester I***: Perspective of Science and Technology, Indonesian language, Basic mathematics I, Basic physics I, Physical geology, Paleontology, Basics of mapping, Environment Knowledge. ***Semester II***: Religious Education, Pancasila, English, Socio-cultural Perspective of Maritime, Basic Chemistry, Basic Mathematics II, Dynamic Geology, Mineralogy.
Mission	1 To develop professional education in the field of marine-oriented geology 2 To develop empowerment program of geology science in making use of energy and mineral resources, mitigation of natural disaster, and spatial planning.	***Semester III***: Citizenship Education, Basic physics II, Geomorphology, Petrology, Basic Statistics, Analytic Chemistry, Micro-paleontology, Legal Aspects and law related to earth. ***Semester IV***: sedimentology, Stratigraphic Principles, Geo-computation, Structural geology, Petrography, Physical Chemistry, Geo-physics, Co curricular subject. ***Semester V***: Geology of Oil and Natural gas, Engineering Geology, Sea geology, Geo-chemistry, numeric methods, Field geology method, Historical geology, Geo-hydrology. ***Semester VI***: Indonesian geology, Field geology, Vulcanology, Submerge geology, Environment Geology, Energy and mineral resources, mineral sediment, carbonate rocks, oceanography, Geological Natural Disaster. ***Semester VII***: Technique of Scientific Communication, geological mapping, Social Service (KKN), Coal geology, Exploration Geology, Industrial mineral, Marine Exploration, Coastal geodynamics, Hydrology of Catchment Area, Coastal Engineering, Ground Water Modeling. ***Semester VIII***: seminar, thesis.
		Supporting Facilities: - Laboratory (for media of learning process through practice consisting of Modeling, Optic Mineral, Petrology and Economic Geology, Geophysics, and Hydrogeology & Environment geology). - Field Campus (for media of learning process to get acquainted with objects and application of geological science in the field). - library
Special Features	In its initial establishment, it was under Chemistry Study Program of Science and Technology Faculty, and it became a separated Department in 1981. Finally, when Science and Technology Faculty was split into Mathematics and Natural Science Faculty and Engineering Faculty, it became a department in Engineering Faculty	

Teaching Staffs (Permanent)	S3	3	Teaching Staffs (Non-Permanent)	S3	1
	S2	23		S2	5
	S1	4		S1	1
	Total	30		Total	7

11. Department: Geology **Study Program: Mining Engineering** **Year of Establishment: March 9, 2004**

<table>
<tr><td></td><td></td><td colspan="3">Main Subjects</td></tr>
<tr><td>Vision</td><td>To become To be an institution for education, analysis, and development of science and technology with orientation to sustainable industry</td><td colspan="3">Semester I : Religious Education, Indonesia Language, Perspective of Science and technology, Basic physics, Basic Chemistry, Physical geology.

Semester II : English, Socio-cultural Perspective of Maritime, General Physics, Calculus II, Techtonophysics, Mineralogy, Environment Knowledge, Technology Concept.</td></tr>
<tr><td>Mission</td><td>1 To develop education in the field of mining engineering

2 to develop high sensitivity and creativity in problem solving related to the field of mining engineering.

3 To develop concern to impact of mineral and energy resources management</td><td colspan="3">Semester III : Citizenship Education, Petrology, geomorphology, Matrix and Vector Space, Statistics, Analytic Chemistry, Introduction to mineral Technology, Mapping

Semester IV : Structural geology, principles of Stratigraphy, Numeric Method, Physical Chemistry, Genesis of Digging Materials, Technique of Scientific Communication, Technique of Exploration, Laws on mining

Semester V : Mineral Economy, Geophysics of Exploration, Geo-statistics, Processing of Excavated objects, Geo-chemistry of Exploration, Soil Mechanics, Ground Water Hydrology, Mining System.

Semester VI : Mineragraphics, Modeling & Evaluation of Reserves, Engineering of industrial Excavated Objects, Rock mechanics, Mining Hydrology, Drilling & Excavation, Exploration mapping, Hydrology Modeling, Coal Utilization Technology, Reserve calculation Engineering.

Semester VII : Coal Exploration, Mining Geo-technique, Mining Management, Mining Planning, Environment Impact Environment Analysis of mining, Mechanic Soil transportation, Mining Excursion, Analysis on mining Investment, Carbonate Rocks, Regional Development, Cebakan kernel model.
Semester VIII : Final tasks, Social Service (KKN), Practical Work.</td></tr>
<tr><td></td><td></td><td colspan="3">Supporting Facilities:

- Laboratory (for media of learning process through practice consisting of Modeling, Optic Mineral, Petrology and Economic Geology, Geophysics, and Hydrogeology & Environment
- Field Campus (for media of learning process to get acquainted with objects and application of geological science in the field).
- library</td></tr>
<tr><td>Special Features</td><td colspan="4">As the engineers, graduates of Mining Engineering Study Program are able to behave and adapt to any environment so that they are able to plan and develop environment-perspective mining, modeling of mineral resources, geo-technique and environment analysis, and formulation of concept of sustainable mineral resources management.</td></tr>
<tr><td rowspan="4">Teaching Staffs (Permanent)</td><td>S3</td><td>3</td><td rowspan="4">Teaching Staffs (Non-Permanent)</td><td>S3</td><td>1</td></tr>
<tr><td>S2</td><td>23</td><td>S2</td><td>2</td></tr>
<tr><td>S1</td><td>4</td><td>S1</td><td>1</td></tr>
<tr><td>Total</td><td>30</td><td>Total</td><td>4</td></tr>
</table>

2007.9.6 別添 1
人間開発部技術教育 T

インドネシア国高等教育案件に係る調査(概要)

ハサヌディン大学（UNHAS）工学部拡充計画

① プロジェクトの背景

南スラウェシにある、同工学部に対しては、JBIC が既に「UNHAS 工学部整備事業」として円借款の協力事業を開始している(2007 年 3 月に L/A 締結　78 億円　施設建設、機材供与、留学生)。SAPROF は終了済み、2007 年中に本体コンサルタント決定、2008 年に詳細設計の予定である。現在、インドネシア側は JICA に対し、新工学部の建設と学生の増加に対応するため、大学の運営管理、カリキュラム・シラバスの作成支援、教員の教育能力・研究能力の向上を主な内容とした協力要請を H20 年度案件として要請を提出する見通しである。

② 調査結果(先方との協議の要点)

(ア)マカッサルおよび東部インドネシア地域のニーズに応える、焦点を絞った工学部強化の必要性の認識が共有された。

(イ)JBIC 協力に係る Project Implementation Unit、JICA 協力に係る Task Force について、組織の統合を調査団より提案し、後日、工学部内において、再度組織構造を検討することが合意された。

(ウ)工学部側は研究活動を重視しているが、現状の大学のレベルを考慮すれば、まずは教育活動の強化を行い、その後、研究活動の強化を行う段階を追ったアプローチが必要であろう。

(エ)6 学科全てへの協力に限らず、同工学部の強みを活かすような学科に注力するほうが、他の大学との競争力を伸ばすことができるのではないかという点について先方と認識を共有した。

(オ)視察した学内にある現工学部の校舎は老朽化が進み、機材についても利用不可能なものが散見された。一方、新工学部の建設予定地である 42ha に及ぶ製紙工場跡地では建屋が依然として残っている。敷地の一部では副大統領の寄付による校舎で一部授業が開始されている。

③ 想定されるプロジェクトのアプローチと留意点

(ア)円借款による機材・施設のスペックの決定の前に、技術協力経験のある大学教官などを派遣し、必要なアドバイスを行うことが重要。派遣予算は JBIC、人選のアドバイスは JICA が考えられる。また、同調査に加わった人材リソースを中心に、JICA の技プロを構築していくことが考えられる。

(イ)プロジェクト前半では、カリキュラム・シラバスの整備などの教育活動の質の向上への協力を全学科に対して実施、後半では、導入された機材を活用した研究活動への支援を行う。協力ステージ別支援も要検討

(ウ)研究支援にあたっては、分野毎に濃淡をつけた協力を行うことも検討すべき。

(エ)借款留学生 82 名を予定しているため、人材不在の期間と技術協力期間の調整は課題。

【主要面談者】

UNHAS：Salam 副学長、Saleh 工学部長、Zainrddin 教官(タスクフォースコーディネーター)
Rudy 教官(JBIC 協力に係る Project Implementation Unit コーディネーター)
JBIC インドネシア事務所：　谷本駐在員

以上

平成 19 年 8 月 24 日

ハサヌディン大学工学部所感

堤　和男

JICA 客員協力専門員

担当副学長，工学部長，JBIC 案件タスクフォース代表，JICA プロジェクト担当者，および各学科の代表など約 20 名との懇談を行った。ハサヌディン大学（UNHAS）の基本データは有る程度入手していたが，JICA プロジェクトの実施にあたり必要な情報，先方の要望などを聴取した。

UNHAS 工学部は，現在 6 学科（土木，建築，機械，電気，造船，地質）11 専攻（2008 年に情報専攻が電気工学科に設置予定）で学生数は 2005 年で 4300 名強（学部約 3900，修士 440）で教員は 299 名（博士保持者 37，修士 153，学卒 109）の規模である。学生と教員の割合は 14.6 でありインドネシアの教育省基準 12.1 を上回る学生が在籍しているが驚くほどの大人数ではない。2006 年度入学者の統一試験平均点は 555 で ITB の 819，UGM 工学部の 714 に較べると質の面では平均的に劣ると言わざるを得ない。また教員も 80%が UNHAS の学部卒であり典型的なインブリーディングが起こっている。しかし，修士取得大学は 50%がインドネシアの他大学（ジャワ島），40％は外国で UNHAS 修士は 10%である。博士取得は殆どが外国で日本の大学での取得者も現在 12 名いる（東大，京大，九大，神戸大，広島大，佐賀大など）。また，現在も九大，広島大，熊本大，佐賀大，奈良先端大学院などで勉強中である。博士取得者の 1/3 が日本ということで，日本への親近感は高い模様である。今後，日本の協力大学の選定に当たっても日本留学経験者および留学中の教員の指導教員と連絡し合って，協力可能かどうかを打診するのが適当である。UNHAS の日本での知名度は高くないので事情を知る教員がいる大学が協力大学として選定しやすいと思われる。

学生の出身地は 60%が近隣の南スラウエシで，35％が他のスラウエシあるいは東インドネシアで，ジャワ・スマトラ出身は５％程度である。学生の卒業後の進路は学科により異なるが，電気・機械はかなりスラウエシに残るが，建築は 100%が外（スラウエシ以外）に出て，地質は多くが東カリマンタン・イリヤンジャヤへ，造船はかなりがマレーシアに就職する模様である。したがって，産業が無いという理由で学生の定着率はかなり低く今後プロジェクトを遂行する場合に考慮すべき問題である。工学部では卒業生の約 5%は大学教員になり，南スラウエシの大学教員の 40%は UNHAS 出身で地域の知恵袋の役割はある程度果たしている。

地域の産業の特徴は海洋工学（海洋資源，造船など）と鉱物資源のようだが，各学科の代表はそれぞれ学科の意義を強調している，例えば，建築は災害緩和に役立ち，土木は水資源，交通などに寄与し，電気は地域の産業振興に寄与しているということで，プ

ロジェクトを総花的にせずにターゲットを絞るという試みは難しそうである。

JBIC タスクフォースの代表からは機材・奨学金・管理運営などへの期待とコンサルタントの任命要望があり 18 名からなる Project Implementation Unit (PIU)の設置が示された。JICA 担当からも各学科 1 名からなる担当組織の構想が示されたが，調査チームから機能的運営のために両組織の合併が提案された。詳細は他チームメンバーの報告にある。いずれにしろ，組織名がすでに決まっているように大学として動くことは事実であるが，JBIC と JICA が一体的に機能しない限り UNHAS プロジェクトの成功はあり得ないので，ここらの組織形態は初めから明確にすべきである。しかし，全学科から代表が出て現状は個別に要望が出されている状況であり，調整を十分行わないとピンポイントでの有効な支援は不可能である。特に，機材の選定は高額でもあり先方の要求の妥当性を吟味した上でプロジェクト目標に適合する機材選定を行うべきである。会議後に「建築」「土木」「電気」工学科を見学したが，実験設備は甚だ不足していると言わざるを得ない。したがって，JBIC 予算も「教育重視」の機材への活用が先決である。工学は座学ではなく「実験」を重視した学問であることを多くの教員の日本での経験から認識させ，教育のための機材を最優先とすべきである。インドネシアでは「学生実験設備の充実」ということだけでも十分に「特徴的」大学になり得る。

JBIC 援助の中には学位プログラムも含まれるであろうが，修士から日本に留学させるよりは修士はインドネシアの主要大学で取得させるのが望ましい。日本の援助が既に入っている ITB，UGM，ITS（スラバヤ工科大），UI（インドネシア大学）などはインドネシア教育省の規則で他大学卒業生を修士に受け入れることが義務付けられそのための奨学金も用意されている筈である。修士取得中に日本の協力大学教員との連携が取れる仕組みを作れば，その中の優秀な者を日本に博士課程学生として派遣すれば効率的である。

JICA 担当者から要望の発表が行われたが，気になったのは「研究能力の向上」が主たる要望であり，「教育」の観点が明確ではないことである。研究論文の数をどのように増やすか，研究学会をどのように開くか，などという瑣末的な要求に優先性が置かれ，いかにも先進国で学位を取得したが先進国の研究者のように活動できていないことを不甲斐なく思っている様子である。 また，発表能力の向上というような情けない基礎的訓練への要求もある。しかし，重要なのは先ずは学生への「教育」である。地域の特色・利点を生かした工学教育を取り入れることで，UNHAS 工学部のインドネシアでの立場を明確にすべきである。現在のインドネシアの地域格差の状況では，工学全体で「研究大学」になるのは難しいと思われる。地域の比較的ポテンシャルの高い学生が入学している筈なので教育の充実を目標にすれば自ら「研究能力」につながる教育者集団になるはずである。「産・官」との連携を進めるのも要望にあったが，大学の使命は教育・研究・社会貢献の順に成し遂げられるのであり，「教育」の重視がプロジェクトの目標

になるべきである。学部教育を充実させ優れた工学スキルを有する卒業生を送り出せば「産」の誘致も容易となり産学連携は必然的に促進される。

ITB や UGM のようにインドネシアのトップ大学の真似をしても何の意味もなく，スラウエシ島の特徴を生かした工学部にするのが使命と思われるが，その点をプロジェクト形成時に先方と十分に意見交換すべきである。2020 年にはハサヌディン工科大学（仮名）になるという将来構想もあるようだが，ミニ ITB をスラウエシに作るのではなく地域に密着した特徴有る大学となることを期待したい。そのために会議の冒頭に「地域の特徴」を確認したのだが，前述のように何でも有りという感じの回答であった。インドネシアのベストの工科大学の 1 つになるのが目的ではなく，地域の特徴・需要に合致したユニークな大学を目指すべきである。現状はその方向にあるとは思えず，可能ならばインドネシアの工学教育に経験が豊富で且つ総合的にフェアな判断の出来るシニアなインドネシア人（学長・工学部長経験者など）を学外からプロジェクトの管理者として招聘できることが望ましい。

2020 年に目指す工科大学の学生数は 9500 名で現状の 2 倍以上であり，今後毎年数十名の教員の補充が必要である。今年度も 30 数名の増員を教育省に要望しているようであるが，他の地域からのスタッフの補充は現状を見てもかなり難しい。大学院の充実も要望していたが，将来的にも現状のような学部主体の大学形態を維持し，地域に特徴的な学科のみが大学院を重視するような工科大学が望ましい。地に足が着いた将来構想の設定が望まれる。

以上

参考資料

学科別協議結果

学科別協議一覧（英語内容含む）

１．　土木学科

（１）BASIC POINTS

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
1. Basic Policy of Dept (Future Plan, Perspective, Vision, How to react to local, regional needs)	【SITUATION】 Unhas Civil Department will be an excellent educational institution in the East Indonesia especially on analytic & design for both the maritime-tropical infrastructure and natural disaster mitigation. In order to reach the above vision, Civil Department already made the roadmap of study programs development, research programs, lecturer's competences development, institutional collaborative network, and equipment development. 【ADVICE】 It is appreciable high that Civil Dept. has a goal to be the educational core in the East Indonesia and that it has already made the roadmap to reach the vision. However, it is necessary for Dept. to make the concrete strategy for both education and research, including encouragement of human resources and institutional collaborative network.
2. Actual Situation of Dept. How Professor/staff are allocated, number of them Content of Program Number of Students	【SITUATION】 4 professors doctors, 5 doctors, 41 master lecturers, 4 doctor candidates (in Japan, USA and Australia), will take a doctor program (5 person to Japan, and 4 person in Indonesia), and 8 under graduates, 3 master candidates (1 person in Australia and 2 person in Indonesia); Civil Engineering study program; 581 under graduate students, and 40 post graduate students. 【ADVICE】 Teaching staff who have Dr. degree including Professors is 20% in the whole. Relatively, the staff in Structural Lab. and Hydraulic Lab. has enhanced. It is extremely necessary to raise the ability of S2 staff (Lectures with Master degree), which accounts for 70% of the whole department teaching staff.
3. Curriculum	【SITUATION】 Civil Engineering Department has already developed new curriculum (see attachment) 【ADVICE】

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
	The curriculums for both undergraduate and postgraduate courses have been almost appropriately developed. However, it is preferable corrected the curriculum with the identity corresponding to the department vision.
4. Syllabus	【SITUATION】 All of lecture subjects have syllabus
5. Education Program Lecture Relationship/Share between Lecture & Exercise Method to use textbook & related material Method of evaluation regarding lecture Experiment/Exercise Facilities Space Equipment	【SITUATION】 Lecture Program: 50% lectures, 16,67 % public service; 33,33% research works Textbook and related internet download materials are used as base scientific on lecture and research activities; Evaluation for student is conducted by discussion activities, exercise products and examination. Experiment/Exercise: There are not any experiment workshop facilities space, but there are enough rooms for planning & design exercises; The equipments for civil engineering (hydraulic, structure, transportation, geotechnical, sanitary & environmental, construction management) are very shortage. 【ADVICE】 Lecture: The various educational procedure and technique have been applied as follows; (1) The experiment and exercise have been appropriately taken. (2) The elective according to the special course in the senior grade have been applied. (3)The evaluation of achievement (GPA) has applied. Experiment/Exercise: The current situation of the facility and equipments in every laboratory are extremely very bad. Also, the computer system have insufficiently set in lab.
6. Research Facility Space Equipment Research Activities	【SITUATION】 Research: There is no special research room in the Civil Dept, but Unhas provides research activity centre (5 story building); Institutionally Civil Department has a limited research equipment such as software and advance equipments; Research atmosphere is not conducive yet, only ± 30% lecturers do research and the master students do research

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
	regarding their thesis. 【ADVICE】 The current research atmosphere is extremely insufficient, especially no or extremely narrow lecturer room. In the new campus, It is important for all lecturers to maintain the environment to be able to be engaged in education and research. The current state that the majority of lecturers are not engaged in research is extremely a problem. It is necessary to improve their research activity from both sides of economical and motivation.
7. Common Subject (coordination with other departments)	【SITUATION】 Inter-department do learning and teaching collaboration on the interdisciplinary master study programs such as Transportation Engineering and Infrastructure Engineering. 【ADVICE】 It is necessary to provide sufficient service for students on attending other faculty's class and also general student life.
8. Other Activities (Relationship with private sector, local community & government)	【SITUATION】 There are several institution relationships between Civil Department with local government, industry and private sector, regarding with civil engineering. 【ADVICE】 A further increase of activities is hoped for.

（２）Equipment Facility Plan

No. ISSUES	ACTUAL SITUATION ADVICE COMMENTS FROM PROFESSORS
1. Plan of Facilities	【SITUATION】 Civil Dept has decided to change its education system from teaching to learning-based and focus on research education system. Therefore Civil Dept proposes the additional laboratories and their experiment equipments. (see attachment) 【ADVICE】 The change of facility plan focused on the research is appreciable. However, it is necessary to enhance the

No. ISSUES	ACTUAL SITUATION ADVICE COMMENTS FROM PROFESSORS
	arrangement of lecturer room in every laboratory.
2. List of Equipments Is it necessary/enough based on actual situation & future strategy/plan? Coordination with other departments Consideration of maintenance aspects	【SITUATION】 Actual equipments are very limited, and therefore research and learning activities are not so conducive yet. Civil depart. needs a future plan (see attachment of the Knowledge, lab, and experiment-research workshop plan matrix in SAPROF Report); In order to response local, national and global needs regarding MDG, climate change, global warming it is necessary to develop interdisciplinary under-graduate and post-graduate study programs such as Environmental Engineering, Natural Disaster Mitigation, Integrated Coastal Zone Planning and Management (Civil, Geology, Oceanography, Forestry, Sociology, ICT). Regarding sustainability of building and equipment, Civil Department considers maintenance aspects, and therefore in order to get financial support, Civil Department will plan the collaborative program with public sector, private sector, industries and other teaching and research institutions. 【ADVICE】 On basis of an extremely insufficient existing equipments, the selection of new equipments along the future plan of Civil Dept. has appropriately selected. If the listed equipments are arranged as it is a demand, it is guessed that UNHAS will be in the top class on the arrangement situation in Indonesia. The priority should be decided within the limit of budget. It is necessary to check the details of listed equipments such as "····set" or "····system" without overlap. It seems that it is considerably difficult for Civil Dept. to do the maintenance management of the demand equipments under the present UNHAS situation. It is necessary to consider the correspondence including the personnel training such as researchers and technicians, the research and maintenance expense.

２　建築学科

（１）BASIC POINTS

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
1. Basic Policy of Dept (Future Plan, Perspective, Vision, How to react to local, regional needs)	【SITUATION】 Unhas Architecture Dept will be a key node in the global knowledge network especially on the archipelago tropical architecture, urban & regional planning & design. In order to reach the above vision, Arch Dept will plan the roadmap of study programs dev, research programs, lecturer's competences dev, institutional collaborative network, and equipment dev. Hopefully the roadmaps will be finished on July 2008. 【ADVICE】 インドネシア諸島をはじめとする熱帯地域の建築・都市計画デザインにおける世界的拠点を目指しており、地域の特性を背景にした明快なコンセプトを評価できる。実現にあたり重要になる設備購入の調整、運用等のロードマップ作成を待たなければならない。
2. Actual Situation of Dept. How Professor/staff are allocated, number of them Content of Program Number of Students	【SITUATION】 Five professors doctors, 2 doctors, two doctor candidates (Austria and Hong Kong), will take a doctor program (7 person to Japan, and 6 person in Indonesia) 35 master lecturers and 5 under graduates; Architecture study program, urban and regional planning study program; ± 425 students Arch S1, ± 15 students Arch S2, 150 students U&R S1 【ADVICE】 体制を充実させるため、海外での学位取得を目指して派遣中または派遣予定の教員が多い。体制の充実が待たれている。暫定期間の体制づくりは課題である。
3. Curriculum	【SITUATION】 Both of Architecture and Urban & Regional Planning programs have already developed new curriculum (see attachment).

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
	【ADVICE】 コンセプトを実現するため、熱帯地域の建築・都市計画に関する内容を盛り込む必要がある。
4. Syllabus	【SITUATION】 All of lecture subjects have syllabus (will be sent by e-mail)
5. Education Program Lecture Relationship/Share between Lecture & Exercise Method to use textbook & related material Method of evaluation regarding lecture Experiment/Exercise Facilities Space Equipment	【SITUATION】 Lecture Program: 33.77% lectures, 34,44 % drawing studio, 31,79 % experiment works; Textbook and related internet download materials are used as base scientific on lecture and research activities; Evaluation for student is conducted by discussion activities, exercise products and examination. Experiment/Exercise: There are not any experiment workshop facilities space, but there are enough rooms for planning & design exercises; The equipments for building science (weather station, humidity meter, thermal meter, sound level meter) are a little bit enough, but the equipment for other experiment workshops are very shortage. 【ADVICE】 卒業設計でプログラム作成を重視するなど、実務ベースのスタジオ教育・設計演習に重点をおいた教育を実施していることは、評価できる。 環境系、構造系等の実験実習のためのスペース不足をあげており、現状視察結果からも必要性を感じる。新キャンパスでの充足が必要である。
6. Research Facility Space Equipment	【SITUATION】 Research: There is no special research room in the Arch Dept, but Unhas provides research activity centre (5 story building);

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
Research Activities	Institutionally Arc Dept has a limited research equipment such as computers and building science equipments; Research atmosphere is not conducive yet, only ± 10% lecturers do research and the master students do research regarding their thesis. 【ADVICE】 リサーチアクティビティセンターによる研究環境の充実が待たれる。研究に従事する教員の割合をいかに引き上げていくかが課題である。
7. Common Subject (coordination with other departments)	【SITUATION】 Inter-department do learning and teaching collaboration on the interdisciplinary master study programs such as Transportation Planning, Urban and Regional Infrastructure Planning, Urban Management and Regional Development Planning. 【ADVICE】 キャンパスが離れるため、他学部との連携体制の構築は課題である。
8. Other Activities (Relationship with private sector, local community & government)	【SITUATION】 There are several individual relationships with local government and private sector, regarding architecture, urban & regional planning, design, management and research. 【ADVICE】 現況は個人レベルでの連携のみであるが、組織間の関係にできる体制づくりも必要である。

（２）Equipment Facility Plan

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
1. Plan of Facilities	【SITUATION】 Arch Dept has an old plan facilities which can be read at SAPROF report, but after several lecturers meeting,

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
	we have decided to change our education system from teaching to learning-based and focus on research education system. And therefore Arch Dept proposes the additional laboratories and their experiment equipments. (see attachment) 【ADVICE】 これまでの講義とミーティングを主体とした教育から、学生自身の学習と研究に重点を置いた教育システムへの移行を目指しており、それに伴う実験実習室の充実が必要である。
2. List of Equipments Is it necessary/enough based on actual situation & future strategy/plan? Coordination with other departments Consideration of maintenance aspects	【SITUATION】 Actual equipments are very limited, and therefore research and learning activities are not so conducive yet. We need a future plan (see attachment of the Knowledge, lab, studio and experiment workshop plan matrix); In order to response local, national and global needs regarding ●MDG, climate change, global warming it is necessary to develop interdisciplinary master study programs such as Environment Planning and Management, Natural Disaster Mitigation, Integrated Coastal Zone Planning and Management (Civil, Geology, Oceanography, Forestry, Sociology, ICT). Regarding sustainability of building and equipment we consider maintenance aspects, and therefore in order to get financial support we will plan the collaborative program with public sector, private sector and other teaching and research institutions. 【ADVICE】 設備、機材の調達の背景となる考え方、方針（東部インドネシアの自然環境、伝統文化、貧困削減等への配慮）を明確にするよう努めていることは評価できる。 地球環境教育など、学際教育の充実は課題である。 当面の予算は限られているため、ロードマップで実施の優先順位を決めておく必要があるのではないか。 設備、機材のメンテンス体制の充実（大学全体、学科、研究室の各レベルで対応）、及び機材選定に当たって、メンテナンスのしやすいものを調達する必要がある。 設備、機材の維持予算確保のために公的機関、企業、他研究所との連携を進めるとしており、維持予算の確保にむけた積極的な展開が課題である。 教育研究において建築設計、工事における安全性の観点の強化も配慮する必要がある。 設備、機材のなかで、必要性は認められるが学科毎に保有することがコスト面、効率性で適当でない場合は、共通実験施設での対応も検討する必要がある。 機材リストの見直しに伴い、事業費総額を増やさないことを条件として、機材リストのなかに盛り込む品目をプライ

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
	オリティ付けをしつつ調整する必要がある。この作業の過程では、特に品目毎の価格見積もりについて、コンサルタントとも早急に協議をおこなう必要がある。

（３）Others

１－１	インドネシア諸島をはじめとする熱帯地域の建築・都市計画デザインにおける世界的拠点を目指しており、地域の特性を背景にした明快なコンセプトを評価できる。実現にあたり重要になる設備購入の調整、運用等のロードマップ作成を待たなければならない。 The global key node in the archipelago tropical architecture, urban & regional planning & design is aimed at, which made the characteristic of the area the background can be highly estimated. We have to wait for the road map creation which contains the arrangement and management of equipments that becomes important in realization.
１－２	体制を充実させるため、海外での学位取得を目指して派遣中または派遣予定の教員が多い。体制の充実が待たれている。暫定期間の体制づくりは課題である。 In order to enrich organization, aiming at degree acquisition overseas, there are many faculties of a dispatch schedule. Substantial organization is needed in the near future. The production of organization control during the provisional period is a subject.
１－３	コンセプトを実現するため、熱帯地域の建築・都市に関する内容を盛り込む必要がある。 To realize the concept of ″ archipelago,″ the contents of some subjects in the curriculum had better to contain the words concerning ‘the tropical.’
１－５	卒業設計でプログラム作成を重視するなど、実務ベースのスタジオ教育・設計演習に重点をおいた教育を実施していることは、評価できる。実験実習のためのスペース不足をあげており、現状視察結果からも、新キャンパスでの充足が必要である。 Carrying out education with emphasis on studio education / design exercise of a business base, such as thinking program creation as important in the final project, can be evaluated. The shortage of a space for experiment training should be raised, Sufficiency on a new campus is needed from a fact-finding tour result.
１―６	リサーチアクティビティセンターによる研究環境の充実が待たれる。研究に従事する教員の割合をいかに引き上げていくかが課題である。 The substantial academic research environment by a research activity center is waited. It is a subject how the rate of the teacher engaged in research is pulled up.
１－７	キャンパスが離れるため、他学部との連携体制の構築は課題である。現況は個人レベルでの連携のみであるが、組織間の関係にできる体制づくりも必要である。

	In order that a campus may separate, construction of cooperation organization with other faculties is a subject. Although present condition is only cooperation on an individual level, the formulation of the structure made to the relation between organizations is needed.
２－１	これまでの講義とミーティングを主体とした教育から、学生自身の学習と研究に重点を置いた教育システムへの移行を目指しており、それに伴う実験実習室の充実が必要である。 To realize the shift to an education system with emphasis on study and research of the student itself, the additional laboratories and their experiment equipments accompanying are needed.
２－２	地球環境教育など、学際教育の充実は課題である。当面の予算は限られているため、ロードマップで実施の優先順位を決めておく必要があるのではないか。 設備の維持予算確保のために公的機関、企業、他研究所との連携を進めるとしており、維持予算の確保にむけた積極的な展開が期待される。 Substantial interdisciplinary education, such as earth environment education, is the subject. Since the present budget is restricted, does it need to determine the priority of enforcement by a road map? It supposes that cooperation with public sector, private sector and other teaching and research institutions will be advanced for maintenance budget reservation of equipment, and the positive deployment towards reservation of the maintenance budget is expected.

３　電気学科

（１）BASIC POINTS

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
1. Basic Policy of Dept (Future Plan, Perspective, Vision, How to react to local, regional needs)	【SITUATION】 To produce competent and professional alumni in electrical energy engineering, telecommunication and information engineering and control, computer and electronic engineering fields that can compete nationally and globally. To develop studies in electrical energy engineering, wireless telecommunication technology, process control engineering and computer network aims for prosperity. To raise the role and image of electrical engineering department/study program through empowering alumni that spread in various work fields in Indonesia and overseas as well. To improve quality and performance of electrical study program through cooperation with various groups both inside and outside the university. 【ADVICE】 ハサヌディン大学電気工学科はスラウェシ島の中核大学として、地域に貢献できる卒業生を輩出するとともに、地域産業に対する支援を行う役目も担っている。電気電子工学の分野では、地域の特徴から、電気エネルギー技術、通信技術、制御・コンピュータ利用技術の３分野が重要であり、これらの地元企業の事情に合わせた即戦力を有する卒業生を送り出すとともに、地元企業からの主な要望に応じた各種のトレーニングを受け入れる中で、ITB やスラバヤ工大など他の有力大学との差別化を図るのが、学科の戦略として望ましいと思われる。このためには、地元企業の考えをよく知ることが必要であり、教員が手分けして、地元企業を訪問し、卒業生に対する要望、トレーニング施設を含む大学による支援に対する要望など、をアンケート調査することが望ましい。
2. Actual Situation of Dept. How Professor/staff are allocated, number of them Content of Program Number of Students	【SITUATION】 Three Professor Doctrors, 4 Doctors, 11 Doctor Candidates (4 in Japan, 5 in Australia, 1 in German, 1 in Malaysia), 6 will take a Doctor program (3 to Japan, 1 to Malaysia, 2 to ITS), 32 Master Lecturers and 13 under graduates; Information and Telecommunication engineering, electrical energy engineering, Computer, control and electronic engineering Total number of students in EE Department is 624 in 2000-2007 in Bachelor, 98 in Master and 7 in Doctor. 156 students join EE in 2007. In Bachlor 40-50% in power, 20-25% each in Telecom and Control. In Master 40-50% in power, 20-25% each in Telecom and Control.

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
	【ADVICE】 3人の教授・博士、4人の博士、11人の博士課程在学者、6人の博士志望者、32人の修士、13人の学士の計69人の教員を有しており、ITBやスラバヤ工大を除けば、他大学に比較して教員の能力・質ともに充実していると言える。在学生は学士課程624人、修士課程：98人、博士課程：7人であり、地元の期待を反映している。
3. Curriculum	【SITUATION】 Curricurum now was started from 2005. The curricurum is modified in every 5 years. As for the datail of curricurum, see attachment 【ADVICE】 カリキュラムは5年毎に見直しており、次の改訂は2010年の予定である。次回のカリキュラム改訂において、アンケート結果に基づいた地元企業の要望を取り入れ、ハサヌディン大学ならではの特徴を出すことが望ましい。
4. Syllabus	【SITUATION】 There is Syllabus book in Indonesian language. English version will be translated, we provide soon after translation complete 【ADVICE】 多くの授業科目についてインドネシア語のシラバスがあるようであるが、内容については英語バージョンを届けるとのことであるので、その後、確認する予定である。
5. Education Program Lecture Relationship/Share between Lecture & Exercise Method to use textbook & related material Method of evaluation regarding lecture Experiment/Exercise	【SITUATION】 lecturer programs: 75% lecture, 25% exercise (lab, field, final project) multimedia presentation material are used on lecture and papers are used as references beside textbooks Indonesian text book 70-80% English text book 20-30% in B, 80-90% English in M. exam, assignment, laboratory, discussion. Experiment/Exercise we have 12 experiment rooms, i.e. basic electricity, computer, control, software, electronic device, telematic, telecommunication and microwave, installation, electical machinery, relay and measurement, power electronic, high voltage see attachment 【ADVICE】

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
Facilities Space Equipment	学生によるロボコンや技術コンテストへの応募の支援にも意欲的であり、学生の授業意欲の増進に役立っている。 実験機材が故障したときにそれらが放置されている場合があるのは、残念である。可能な場合に、それらを学生とともに修理することは地元企業において役立つ技術を教育することにもつながるので、今後、このような機材の修理を通じた技術教育も考慮に入れることが望ましい。 実験は12テーマ有り、12研究室が分担している。環境対策にもなる自然エネルギー関係の研究室を大学側に申請したが、認められなかったとのことである。重要なテーマではあるので、電気電子工学科全体または関係する研究室で話し合い、電気エネルギー関係の研究室の中で暫定的にテーマを扱うことも、考えると良い。
6. Research a. Facility Space b. Equipment c. Research Activities	【SITUATION】 we have no special research room we use equipment that provided in experiment rooms ± 30 percent lecturer do research, some of research conducted independently, and some of research conducted involve undergraduate and graduate students, undergraduate and graduate students must do research regarding to the final project / thesis 【ADVICE】 約30%の教員が研究を実施しているとのことであるが、この比率を高める必要がある。また、国際レベルの研究を実施するように努力を継続すべきである。このためには日本や欧米で博士号を所得した教員が同等の研究機材を確保して、元の指導教員とコンタクトを取りながら、研究を継続する体制を早急に整える必要がある。これらの教員を通じて、他の教員の研究レベルを引き上げていくことが望ましい。 インドネシアの高温・多湿という気候条件によって故障する機材が電気工学分野では少なからず存在するので、それらを研究対象とすることは、日本や欧米諸国では出来ない独自の研究を実施することにつながると思われる。このような研究の中から地元企業に貢献出来る研究を行い、論文を発表するのみならず企業からの研究資金を獲得することにもつながる。
7. Common Subject (coordination with other departments)	【SITUATION】 General Subjects (e.g Calculus I and II, Physics I and 2, Religion, etc.) 【ADVICE】 新キャンパスに移ったときに、物理や数学関係の授業と学生支援がこれまでのように行いにくくなる恐れがあるので、予め十分な対策を考えておく必要がある。
8.	【SITUATION】

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
Other Activities (Relationship with private sector, local community & government)	There are several relationship with state companies (BUMN) e.g PT. PLN, private sector and ministry Depkominfo regarding electricity, telecommunication research, etc. 【ADVICE】 すでに個人的関係をもとに地元企業の支援活動を実施しているので、それらを更に強化することが望まれる。また、これらに対する学部及び大学としてのサポートを充実させることが望まれる。

（２）Equipment Facility Plan

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
1. Plan of Facilities	【SITUATION】 Electrical Engineering Department has an plan of facilities which can be read at SAPROF report (see attachment for detail)
2. List of Equipments Is it necessary/enough based on actual situation & future strategy/plan? Coordination with other departments Consideration of maintenance aspects	【SITUATION】 We still need evaluation or review on the SAPROF's list equipments. None Very low consideration and still need advice. 【ADVICE】 電力系統シミュレータなど、日本では現在は使用していない実験機材も含まれているが、これらを用いて地元企業に即戦力を有する特徴ある学生を供給したいとのハサヌディン大の事情を考えると必要な機材と思われる。これらの機材は、地元電力会社からトレーニング生を受け入れるのにも必要な機材でもある。地元の事情はハサヌディン大の教員が一番良く理解しているので、その要望に基づいた機材を支援するのが効果的と思われる。ただ、大型予算を獲得できる機会は極めて少ないので、資金を効果的に使用するように、何度も強調しておいた。教員からの説明を受け、説明が不十分な部分を聞き返す中で、一部を除き納得可能な機材が選ばれていると思われた。これまでの経験において故障が多い機材については、交換部品を入れておくようにアドバイスをしておいた。 討議の中で、高電圧分野において、他学科でも申請されている電子顕微鏡を取り止め、部分放電計測装置に代えることになるなど、今後、変更要請がでて来る可能性があるので、対処をお願いしたい。

４　機械学科

（１） BASIC POINTS

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
1. Basic Policy of Dept (Future Plan, Perspective, Vision, How to react to local, regional needs)	【SITUATION】 Mechanical Department concern with several Developing aspects. The following aspects are: 1) research development, 2) Education development, 3) Academic Staff development, 4) Industrial cooperation, 5) Teaching and Learning Process, (Curriculum, Learning material, laboratory activities). Mechanical Department, EF of Hasanuddin University has a vision as Center of Mechanical Engineering education, research and public service in Indonesia for science and technology development. 【ADVICE】 It is good to hold up a high-level target for the future of the department. The most important thing is the enhancement of the quality of education. Therefore, education development should be the first. In order to enhance the quality of education, in addition to preparing facilities and equipment, preparing good teaching materials and lots of technical books are essential. Mechanical engineers are needed in almost all the manufacturing companies but at present the number of manufacturing companies in Sulawesi is small. The contribution of university to its local area is important but the target of the department had not better be limited to local area.
2. Actual Situation of Dept. How Professor/staff are allocated, number of them Content of Program Number of Students	【SITUATION】 7 Professors (incl. 1 enumerates Professor), 3 doctors, 1 doctor candidate, 6 persons will take a doctor program (Japan & Australia), 26 master lectures, 7 master candidates, and 2 under graduates. Mechanical Engineering (ME-UGrad) Study Program (S1); Industrial Engineering (IE-UGrad) Study Program (S1); Mechanical Engineering (ME-Grad) Study Program (S2) 551 of ME-UGrad students, 324 of IE-UGrad students; 54 of ME-Grad students 【ADVICE】 Through the UNHAS new campus project, the number of staff with higher degree will be increased and the quality of teaching staff is also increased. Education program seems adequate. The number of students per staff is not so large. If the number of graduate students is increased in future, the number of teaching staff needs to be increased.

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
3. Curriculum	【SITUATION】 Both of ME-UGrad and IE-UGrad have already developed a new curriculum 【ADVICE】 Taking the current status of the development in industry in Indonesia into account, the curriculum seems appropriate. Some research activity or something like that had better be included in the final project. This will contribute to enhancing the ability of students as well as that of teaching staff.
4. Syllabus	【SITUATION】 All of lecture subjects have syllabus 【ADVICE】 The contents of syllabus are not known but the syllabuses have been prepared for all the subjects.
5. Education Program Lecture Relationship/Share between Lecture & Exercise Method to use textbook & related material Method of evaluation regarding lecture Experiment/Exercise Facilities Space Equipment	【SITUATION】 Education Program: Lecture 81.25% course works; 11.80 % Laboratory works, 6.90% field works; Textbooks and related material placed in department library. Lecturer and student can access the material by following the SOP. For subject which is conduct by coursework, student will have their marks from their exam evaluation (mid and final exam) a well as from their homework. For the laboratory works, the mark will come from the psychometric evaluation and paper base test. Education Program : Experiment There is quite enough space for the facilities to do an experiment and exercise in laboratory, but there are not enough public/communal space for student for having an informal discussion outside the class. Most of the equipments are obsolete or even out of order (about 40% of them are 25 years old). The result/data that the result of those equipments are sometime fake or cannot be validate. 【ADVICE】 Lecture The ratio of the credits assigned to lectures to those assigned to exercises is appropriate. After a lecture is finished in a semester, the exercise related to the lecture is given in the next or later semester. This education system is good.

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
	Many English technical books will be purchased by the UNHAS project and will be placed at the laboratories, department library or faculty library. This will contribute to the education of students and to augmenting staff's knowledge. The evaluation method seems appropriate. Experiment/Exercise Space is not enough. Experimental apparatuses have been placed in the laboratories to some degree but are not enough. Many new equipment and apparatuses will be placed in each laboratory through the UNHAS project and laboratory environment will be largely improved. However, only the introduction of new equipment and apparatuses cannot contribute to enhancing the quality of education so much. For the education of senior students and graduate students, education through research activity or problem-based learning is essential.
6. Research a. Facility Space b. Equipment c. Research Activities	【SITUATION】 There are no special spaces or rooms for research activity. Data collection activities are done in a laboratory room (equipment / instruments room) No special equipment allocated for research activity. Only about 10% of lecture does research and among it, just about 1% is an advance research. 【ADVICE】 Space for research is not enough. Equipment and apparatuses that can be used for research activities are few Research activities are not made at present. This is due to the lack of space, apparatuses, research fund, journals, in addition, to staff's weak will (or no incentive) to do research.
7. Common Subject (coordination with other departments)	【SITUATION】 18% credits of subjects are belonging to the common subjects, including fundamental physic, mathematic, and chemistry. 【ADVICE】 The percentage of the credits assigned to common subjects seems appropriate.
8. Other Activities	【SITUATION】 There are several individual relationships with local industry (both public & private) sector, regarding

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
(Relationship with private sector, local community & government)	Mechanical design, maintenance management, optimation, and research. 【ADVICE】 Consignment tests asked by industry have been done to some degree but not so much. The introduction of many new apparatuses and machines will contribute to increasing the consignment tests. It is expected for the relation between the department and industry to be strengthened.

（２）Equipment Facility Plan

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
1. Plan of Facilities	【SITUATION】 Dept of Mechanical Engineering propose to have a facilities that support learning base education system, which IT and laboratory as the leading facilities. In order to realized that ideas, most of the current facilities cannot be move and use in a new campus. There are some new laboratory will be established, as well as a lot of equipments and instruments 【ADVICE】 The department consists of 17 laboratories. Some of them can be combined but the organization of the laboratories is not inappropriate. The difference in the floor area of each laboratory at new campus is relatively large.
2. List of Equipments Is it necessary/enough based on actual situation & future strategy/plan? Coordination with other departments Consideration of maintenance aspects	【SITUATION】 All the proposed equipments are related to the actual situation and will support the department future strategy/plan. With the support of the new facilities and equipments, the interdisciplinary research can be done by making some resource sharing arrangement with other department and industrial sector. Having an extensive advance research and collaboration with industry, maintenance aspect and sustainability of the facilities can be kept on the track. 【ADVICE】 The enhancement in the education quality is the first priority. Many apparatuses classified into the so-called education kits are included in the equipment list. Education kits are important and useful for the education of 1st- to 3rd-year students but are not sufficient for the education of senior and graduate students. The number

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
	of the education kits has to be minimized. It is strongly recommended to purchase wide-use apparatuses such as measuring devices, which can be used for future research activities as well as education. Many machine tools are newly purchased and will be placed in the workshop of the department of ME and some staffs of other departments will want to hope to use them to make experimental apparatuses or test specimens. Some staffs of ME department wants to use a SEM which will be purchased by the department of Geology. Cooperation among departments is necessary. Consumables such as machine shop tools are included in the equipment list. The apparatuses that need frequent maintenance and/or cost a great deal for maintenance are excluded from the list.

５　地質学科

（１）BASIC POINTS

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
1. Basic Policy of Dept (Future Plan, Perspective, Vision, How to react to local, regional needs)	【SITUATION】 Unhas Geology Dept will be a key node in the global knowledge network especially on the center of research and development for natural resources particularly in Eastern Indonesia. In order to reach the above vision, Geo Dept will plan the roadmap of study programs dev, research programs, lecturer's competences dev, institutional collaborative network, and equipment dev. 【ADVICE】 It sounds good in general, including roadmap for 2006-2010, though it has not been conducted yet. It is important to push through the plan.
2. Actual Situation of Dept. How Professor/staff are allocated, number of them Content of Program Number of Students	【SITUATION】 No professor doctor, 2 doctors, three doctor candidates (2 persons in UNHAS and 1 person in IPB), will take a doctor program (4 person to Japan, and 2 person in Indonesia), three master candidates (ITB, UNHAS, Australia), 22 master lecturers and 3 under graduates; the total number of lecturers are 28 person Geology study program, and Mining Engineering study program; 517 students Geo S1 (under graduate), ± 4 students Geo S2 (master program) 【ADVICE】 Only two PhD at this moment, while some PhD candidates and more staffs applying/planning to do. Number of academic staff at geological course is large whereas the number of staff at mining course is small. Five laboratories have been proposed but only two have been approved, maybe based on the existing number of staff at this moment. However considering the number of students per batch in the mining course (40 per batch), it is advised to increase the number of academic staffs and laboratories. Young academic staffs who are going to obtain PhD in near future appear active in research.
3. Curriculum	【SITUATION】 Both of Geology and Mining study programs have already developed new curriculum (see attachment) 【ADVICE】 Training in the field such as mapping in geology course and internship in mining course appear good.

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
4. Syllabus	【SITUATION】 All of lecture subjects have syllabus (will be sent by e-mail) 【ADVICE】 Systematic syllabus has not been prepared in the department.
5. Education Program Lecture Relationship/Share between Lecture & Exercise Method to use textbook & related material Method of evaluation regarding lecture Experiment/Exercise Facilities Space Equipment	【SITUATION】 Lecture Program: 63.00% lectures, 17,00 % field practices, and 20,00 % experiment works; Textbook and related internet download materials are used as base scientific on lecture and research activities; Evaluation for student is conducted by discussion activities, exercise products and examination. Experiment/Exercise: There are some laboratories facilities space for exercises, but not enough - The equipments for laboratories not sufficient to perform experiment, even more there are 3 (three) laboratories (Stratigraphy, Geohydrology, Geotechnic) without equipment - Equipment for field geology laboratory is too old 【ADVICE】 Training in the field such as mapping in geology course and internship in mining course appear good. Text books and references, journals are lacking in each laboratories and in the library of the department, though some were donated by the industries. Effort is required to improve the libraries. Some basic equipments such as binoculars, microscope and pc in air-conditioned room are installed and used for training, though number of equipments are limited and spec of pc are not updated. However, basic equipments are not installed in some laboratories, and in those laboratories, training of enough quality to learn research techniques are not possible.
6. Research a. Facility Space b. Equipment c. Research Activities	【SITUATION】 Research: There is no special research room in the Geol Dept, but Unhas provides research activity centre - Institutionally Geol Dept has a limited research equipment such as computers, microscope, and sample preparation. Chemical analysis is done in other institution - Marine Geology Engineering and Engineering Geology groups have no equipment to perform research Research atmosphere is not conducive yet, only ± 10% lecturers do research and the master students do research

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
	regarding their thesis. 【ADVICE】 Some basic equipments such as binoculars, microscope and pc in air-conditioned room are installed and used for training, though number of equipments are limited and spec of pc are not updated. However, basic equipments are not installed in some laboratories, and in those laboratories for research. In addition, research by the academic staff has not been conducted apparently. Textbooks and references, journals are lacking in each laboratories and in the library of the department, though some were donated by the industries. Effort is required to improve the libraries, though e-journal subscription should be considered by the university head quarters.
7. Common Subject (coordination with other departments)	【SITUATION】 Inter-department do learning and teaching collaboration on the interdisciplinary master study programs such as Geophysics program study, Soil sciences Dept 【ADVICE】 Post-graduate education program is provided by the graduate school coordinated with other department, since the number of graduate students and academic staffs having PhD are still very limited. When the number of graduate students and academic staffs with PhD are enough, it must be encouraged to establish post graduate curriculum of the department.
8. Other Activities (Relationship with private sector, local community & government)	【SITUATION】 There are several individual relationships with local government and private sector, mining industry, and oil company 【ADVICE】 Some individual relationships with local government, mining industry and oil company. Some equipments such as microscope and books. Some consultancy activities are being done by the staffs. Formal collaborative research should be established, and the result can be published as academic achievements.

（２） Equipment Facility Plan

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
1. Plan of Facilities	【SITUATION】 Geol Dept has an old plan facilities which can be read at SAPROF report, but after several lecturers meeting, we have decided to change our education system from teaching to learning-based and focus on research education system. And therefore Geol Dept proposes the additional laboratories and their experiment equipments. (see attachment) 【ADVICE】 In order to enhance and improve the education for S1, S2 (and S3 in future), especially education through research work for the thesis work, equipments for training such as microscope, pc, sieve, etc must be installed, while more advanced equipments should be installed using the JBIC loan, including SEM, XRD and some soft wares.
2. List of Equipments Is it necessary/enough based on actual situation & future strategy/plan? Coordination with other departments Consideration of maintenance aspects	【SITUATION】 Actual equipments are very limited, and therefore research and learning activities are not support academic environment yet. We need a future plan (see attachment of the Knowledge, lab, experiment workshop plan matrix); In order to respons local, national and global needs regarding ●Energy and Mineral Resources, Geological Hazard, climate change, urban planning, global warming it is necessary to develop collaboration with other departments such as Environment Planning and Management, Natural Disaster Mitigation, Integrated Coastal Zone Planning and Management (Civil, Oceanography, Forestry, Archeology, Soil sciences, Geophysics, Chemistry, ICT). Regarding sustainability of facilities, it is planned to get financial support through collaboration with public sector and other institutions, particularly oil, gas and mining industries 【ADVICE】 Most equipments listed in the proposal appear necessary in order to enhance and improve the education for S1, S2 (and S3 in future), especially education through research work for the thesis work, though some equipments do not appear reasonable such as K/Ar dating. More appropriate for common use in the department such as XRF (sand necessary sample preparation equipments) and fluid inclusion heating/freezing stage are advised to add. Sharing with other departments are advised for the commonly used expensive equipments such as XRD and SEM. In addition a large printer for poster (A0 size) is advised to install as a common equipment in the faculty/library or COT. Academic staff should be educated through their research work experience how to use, operate and maintain

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
	the equipments, if they wish to purchase. Otherwise, they cannot sustain the equipments.

（３）Others

During the stay, following features have been argued.

1	Equipments proposed for age determination (K/Ar including mass spectrometer, 14C, and fission track) have been cancelled, considering the less demand (fewer users) for education purpose, required attached equipments for sample preparation, lack of experts since academic staff to be sent to Japan for PhD study and other existing staffs will not have experiences to learn operation and maintenance as a major part of their research. Otherwise, it is very difficult to maintain such equipments.
2	Alternatively, other equipments to be used by more users, and some academic staffs can operate and maintain in future after their PhD program are advised to purchase, such as XRF and fluid inclusion heating/freezing stage are recommended. Exact price of those equipments must be quoted from the supplier.
3	SEM, XRD and XRF must accompany cooling water circulation system and air conditioning. Estimated price of SEM and XRD already include the cooling water system. Price estimation for XRF including the cooling water system is necessary.
4	It is confirmed that EDX analysis unit is included in SEM and price estimation.
5	Carbon coating machine for the sample preparation for SEM must be added to the list of equipments. Price estimation must is necessary inclusive of necessary attachments.
6	A room for wet chemical experiments/analysis must be prepared, for example for the sample preparation for atomic absorption (AAS). Aqueous solutions will be analyzed by AAS, so that the rock and mineral samples must be decomposed by chemical process. For this purpose, pure water is necessary so that distillation equipments or MilliQ water equipment is required. In addition, such chemical process room must be equipped with a draft chamber to use toxic chemicals such as hydrofluoric acid necessary for decomposition of rocks. One draft chambers must be installed for inorganic materials. Prices for MilliQ water equipment and draft chambers must be quoted. Furthermore, chemical experiment tables/desks with wash basin must be installed.
7	Ventilation system for AAS must be installed.
8	Biostratigraphy laboratory also use toxic chemicals as heavy liquids for mineral separation. So, another draft chamber should be installed. Price for draft chamber must be quoted.
9	Sample preparation room for rock cutting with diamond saw and grinders must be placed on the ground floor. Water supply and drainage system should be designed with special care such as trap for sand and mud sedimentation for the drainage. Dust and noise will be created from this room.

10	Air conditioning is required for SEM, XRD and XRF.
11	Ventilation//fan system is required for AAS and draft chambers. These rooms should be placed at the top floor.
12	Vehicle (4×4 wheel drive) for fieldwork has been proposed but it cannot be approved by JBIC.

６　海洋学科

（１）BASIC POINTS

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
1. Basic Policy of Dept (Future Plan, Perspective, Vision, How to react to local, regional needs)	【SITUATION】 UNHAS Naval Architects Dept will function as a center of knowledge to respond to the local demands, and develop study programs and research programs In order to give solutions for Indonesian proper problems such as small ship design concept and regulation, and capsizing of ferry boats. 【ADVICE】 There are a lot of small ship owners and shipyards in Indonesia, and they have proper problems. Furthermore, inter-islands transportation is important issue, but serious ship accidents often occur. However, any universities have not corresponded to those problems so far. In that sense, their attitude that corresponds to local problems can be estimated.
2. Actual Situation of Dept. How Professor/staff are allocated, number of them Content of Program Number of Students	【SITUATION】 Two professors doctors, three doctors, seven doctors candidate (4 in domestic universities and 2 in Japan and 1 in Malaysia), 2 persons attend in master course of Australian Universities with AUSAID scholarship and 2 persons in ITS with domestic scholarship, will take doctor (2 persons with JBIC program in Japan, 3 persons with JBIC program in domestic universities and 1 person in Japan with Indonesian Education of Ministry). 19 lecturers with master degree and 3 lecturers with bachelor degree. Naval Architecture, Marine System Engineering and Ocean Engineering. 402 students in Naval Architecture, 183 students in Marine System Engineering, 190 students in Ocean Engineering. There are not students for master and doctor degree. 【ADVICE】 There is imbalance in age structure. Although many young stuffs are studying abroad, there is no meaning if they just proceed to PhD. To promote researches and to contribute study development are most important. The number of student stands comparison with the other dept, but there is no master course student. As we’ve got the information that NA Dept is not popular to one part of students, The analysis for reasons of insufficiency to Master Course is necessary.
3. Curriculum	【SITUATION】 These three programs have developed new curriculum (see attachment).

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
	【ADVICE】 The curriculum looks like royal road to NA, but the analysis for social demand is necessary and the curriculum should be changed to reply it.
4. Syllabus	【SITUATION】 All of lecture subject have syllabus (see attachment) 【ADVICE】 There is no syllabus. It is considered that the contents might be so old-fashion through abstracts. I suggest that the curriculum should be changed to more general ones. The applicable education contents to any other industries are adopted in most of Japanese univ. at the moment.
5. Education Program Lecture Relationship/Share between Lecture & Exercise Method to use textbook & related material Method of evaluation regarding lecture Experiment/Exercise Facilities Space Equipment	【SITUATION】 Lecture program: 48.78% lectures (waiting data from study programs) Textbook and related materials are used as based scientific on lecture and research activities. Method of evaluation regarding lectures: presentation, discussion, exercise product and result of examination. Experiment/Exercise: There are towing tank, wave tank, machinery laboratory, welding/structure laboratory and computer center for experiment purpose and one room for design and drawing. The equipment for resistance test, wave characteristic, heat transfer and welding exercise are available even very low accuracy for research purpose. 【ADVICE】 The policy of respect to exercise is estimated, but one of them looks like the contents in polytechnic and I wonder if those need in university education. Present experimental facilities are not enough for carrying out actual experiments for student education.
6. Research Facility Space Equipment Research Activities	【SITUATION】 There is not special room for research activity in Naval Architecture Department. The available equipments are not suitable to conduct good research. Some research activities are stability and safety of ship and marine structure in wave, maneuvering, characteristic of shallow water waves, coastal processing (sedimentation, abrasion and coastal protection),

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
	ship production planning, ship transportation system, ship resistance, reliability and maintenance of ship machinery. 【ADVICE】 We cannot deny that the present situation of facilities is inferior, but consideration that the solid facilities relate to the research activities is a kind of phantom. The research activity depends on the personal efforts of each staff. I wonder if their research activities are called real research compared with world standard.
7. Common Subject (coordination with other departments)	【SITUATION】 Many subjects in study program of Ocean Engineering relate with Civil Engineering. Some lecturers of Civil Engineering teach these subjects. The study program of Marine System Engineering relate with Mechanical Engineering Department. Some lecturers of Mechanical Engineering handle subject in Marine System Engineering. 【ADVICE】 There might be possibilities of collaboration with other fields, but it is a little bit difficult through my experiment if they don't want to change their education system. Sharing hardware is one of first step to do that.
8. Other Activities (Relationship with private sector, local community & government)	【SITUATION】 Institutionally, Department of Naval Architecture has collaboration with BKI (Indonesian Bureau Classification) regarding stability and safety of ships, Ministry of Communication in case of design of proto-type of passenger-cargo ship. Personally, some lecturers have collaboration with government and private institutions. 【ADVICE】 Activities of BKI are almost limited within domestic and their consideration satisfies to the vision in that sense. The collaboration with private institutions should be promoted more in order to maintain new facilities. But there might be very few demands for R/D from Indonesian shipbuilding industry, so the contents of education and research should be generalized.

（２）Equipment Facility Plan

No. ISSUES	ACTUAL SITUATION / ADVICE COMMENTS FROM PROFESSORS
1. Plan of Facilities	【SITUATION】 Plan facilities submit in SAPROF report have been revised after meeting and discussion with JICA Team. Revision result of the plan facilities can be seen in attachment. 【ADVICE】 We have question in planning process. Although the project in this time influences to dept's future, the contents of their plan weren't grasped by all of dept's members. The logical investigation and the information sharing are also not done.
2. List of Equipments Is it necessary/enough based on actual situation & future strategy/plan? Coordination with other departments Consideration of maintenance aspects	【SITUATION】 All equipments facility plan are not enough to arrange educational process and research activity for actual situation and future strategy/plan (see research strategy/plan in attachment). Some future strategies/plans of research need to conduct within collaboration with other department such as fisheries department, marine science department, electrical department, machinery department and other institution/university such as ITS. Regarding sustainability of building and equipment, maintenance depends only on the budget from university. For future, we have to develop collaborate with others institutions and industries to get some budget for maintenance purpose. 【ADVICE】 The large changing point from original plan is changing length of towing tank 130m. The specs of attached equipment with tank; e.g. towing carriage, wave maker and water purification system to keep water quality; that were not clear at the beginning were decided according to their future plan. The equipment to carry out minimum basic experiments; e.g. Resistance Dynamometer, Propeller Open Water Dynamometer, Towing Guide, Inclinometer, load cells and Swing frame table meter; were added to the list. ROV (Remotely Operated Viecle) with camera to observe in water was also added. As a result, the specs of all equipment exceeded Hiroshima Univ. ones. As we described, there might be very few correlation between facility and research activity, but they think so. In that sense, the outputs on research should exceed the activities of Hiroshima Univ. at least. They have to know that it is obligation.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