

## 第Ⅱ部

### 第二次事前評価調査報告書



# 目 次

## 第1章 調査団の概要

- 1-1 経緯と目的
- 1-2 調査団構成
- 1-3 行程
- 1-4 主要面談者

## 第2章 調査結果

- 2-1 Lab-Based Education 導入に向けた協議
- 2-2 具体的な協力計画・方法・内容
- 2-3 円借款プロジェクトとの一体的実施.
- 2-4 学科別協議結果
- 2-5 総括所感

## 添付資料

- 1 ミニッツ
- 2 学科別協議結果
- 3 ワークショップ “Workshop on Lab-Based Education Sharing” 資料
- 4 サトリオ団員 LBE 発表資料
- 5 円借款プロジェクト短期リサーチフェローシップにかかる協議資料
- 6 収集資料
  - ・ハサヌディン大学工学部 Strategic Plan



## 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プロ「ハサヌディン大学工学部強化計画プロジェクト」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る。2008年3月の第一次事前評価調査に引き続き、以下の目的のもと、7月30日～8月31日の日程で第二次事前評価調査を実施する。

第一次事前評価調査にて確認された以下の基本コンセプトに基づき PDM、PO の内容を固め、協議結果を M/M に添付する。

- ・工学部の教育研究体制整備では、教育能力の向上を優先的に行う。
- ・(日本の) 研究室ベースの教育研究体制を工学部に適用する。

また、プロジェクト開始の準備として、学科別協議を通じて、プロジェクト開始後の技術協力の内容に係る各学科の教育研究体制の改善に向けた計画(案)、実施の基盤となる研究室ベースの教育研究体制の導入計画(案)を策定する。

その他必要に応じて、円借款プロジェクトで実施される、施設の詳細設計、各学科の機材選定、フェローシップ(リサーチプログラム)の内容を含む研修計画(案)について、UNHAS 側への助言、コンサルタントとの意見交換を実施する。

### 1-2 調査団構成・行程・主要面談者

#### 1-2-1 調査団構成

##### ・調査団員(敬称略)

総括	JICA 国際協力専門員	堤 和男
高等教育	インドネシア共和国 高等教育総局長	Dr. Satryo S. Soemantri
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環境都市部門 教授	小松 利光
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	安川 宏紀
協力企画	九州大学国際交流推進室 特任教授	飯島 聡
協力企画	JICA 人間開発部 職員	奥本 将勝

以下、現地インドネシアから参加。

- ・ 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

1-2-2 行程

No.	月日	曜日	担当者	内容	九州大学国際交流推進室(産高先生)	九州大学土木・小松先生, 産高・坂井先生)	産高技術科学(植村・藤田先生, 電気・電子・産高先生)
1	7/30	水	基本 成田(11:25) ⇒ ジャカルタ, スカバル(17:05) JL728/Y				
2	7/31	木	9:00-10:45 JICA事務所 11:00-12:00 DOME(PTA)局長会議 ジャカルタ, スカバル(14:40) ⇒ マカッサル(18:00) GA 814 ⇒ 調査方針, スケジュール確認, 機種のポイント整理 午後, 情報整理				
4	8/1	金	産高専門員 ⇒ ジャカルタ, スカバル(11:30) TG483/C ジャカルタ, スカバル(14:40) ⇒ マカッサル(18:00) GA814/C ジャカルタ, スカバル(20:35) ⇒ マカッサル(23:55) GA812/C 産高専門員 ⇒ マカッサル(15:35) SO465/C ジャカルタ, スカバル(17:30) ⇒ ジャカルタ, スカバル(18:05) SO462/Z ジャカルタ, スカバル(20:35) ⇒ マカッサル(23:55) GA812/C 産高先生 ⇒ ジャカルタ(17:05) JL725 ジャカルタ, スカバル(20:35) ⇒ マカッサル(23:55) GA812/C				
5	8/2	土	ジャカルタ, スカバル(20:35) ⇒ マカッサル(23:55) GA812/C 午後, 情報整理 午後, 国内打ち合わせ⇒調査方針の確認				
6	8/3	日	午前:11:00~国内打ち合わせ⇒調査方針確認 午後:14:00~17:00 研究室中心教育WS 17:30~国内打ち合わせ⇒WSの結果確認				
7	8/4	月	午前:10:00~工学部教員, PRUとの打ち合わせ 午後:工学部教員, PRUとの打ち合わせ ⇒PDGMの内容確認, 修正 ⇒調査方針別協議				
8	8/5	火	午前:工学部教員, PRUとの打ち合わせ ⇒PDGM確認 午後:14:30~17:00 工学部教員, PRUとの打ち合わせ ⇒PDGMの内容確認(収入内訳)協議				
9	8/6	水	午前:工学部教員, PRUとの協議 ⇒MHP内容修正・P.D確認 17:30~ MHP内容(平長)				
10	8/7	木	産高専門員 ⇒ジャカルタ, スカバル(7:00) ⇒ ジャカルタ, スカバル(18:15) GA811/C ジャカルタ, スカバル(12:45) ⇒ バンコク(16:15) TG484/C ヤマトバス, 8:30(1:00) 博士フェローシップ候補者への説明 11:00~フェローシップ(短期)サテライトプログラムの方針(内容, 期間含む) 13:00~ 博士フェローシップ候補者への説明				
11	8/8	金	ヤマトバス マカッサル(17:00) ⇒ ジャカルタ, スカバル(18:15) 基本 マカッサル(17:00) ⇒ ジャカルタ, スカバル(18:05) GA813/C 14:00~ JBC駐在員事務所報告 16:00~ JICA事務所報告				
12	8/9	土	ジャカルタ, スカバル(22:15) ⇒ 成田 (207:45) JL728/Y ヤマトバス ジャカルタ, スカバル(20:45) ⇒ シンガポール(23:20) SO987/Z ⇒ 成田 (07:45) JL728/Y				
13	8/10	日	ヤマトバス シンガポール(11:05) ⇒ 名古屋 (8:35) SO472/Z				
No.	月日	曜日	九州大学(植村・坂井先生)	九州大学(小松先生, 産高・坂井先生)	産高技術科学(植村・藤田先生, 電気・電子・産高先生)		
1	8/23	土	植田(10:15) ⇒ シンガポール(15:25) SO452/Z ジャカルタ, スカバル(18:05) SO462/Z ジャカルタ, スカバル(20:35) ⇒ マカッサル(23:55) GA812/C 午後, 産高整理				
4	8/25	月	午前:工学部教員訪問 午後: 資料整理				
5	8/26	火	午前~午後: 資料別協議				
9	8/28	木	午前~午後: 資料別協議				
8	8/28	金	午前: 資料別協議⇒まとめ 午後: 資料整理				
9	8/30	土	午前: 資料整理 ジャカルタ, スカバル(15:45) ⇒ ジャカルタ, スカバル(17:00) GA803/C ジャカルタ, スカバル(18:05) ⇒ シンガポール(21:40) SO463/Z シンガポール(11:00) ⇒ 名古屋(8:35) SO472/Z				
9	8/31	日	植田(10:15) ⇒ シンガポール(15:25) SO452/Z ジャカルタ, スカバル(18:05) SO462/Z ジャカルタ, スカバル(20:35) ⇒ マカッサル(23:55) GA812/C 午後, 産高整理				

### 1-2-3 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) UNHAS 関係者 :
  - ・学長 Prof. Dr. dr. Idrus A. Paturusi
  - ・副学長 (学術担当) Prof. Dr. Dadang Surya Miharja
  - ・副学長 (開発、計画、協力担当) Dr. Dwia Aries Tina P., MA
- (3) UNHAS 工学部関係者 :
  - ・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
- (4) 円借款プロジェクト (施設・機材選定) に関するコンサルティングサービス実施コンサルタント :
  - (株) オリエンタルコンサルタンツ
  - ・宮武 一弘 氏
  - ・黄 國鳳 氏
- (5) 在インドネシア日本大使館 : 野口 健 一等書記官
- (6) JBIC ジャカルタ駐在員事務所 : 谷本 信賢 駐在員
- (7) 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

ハサヌディン大学と LBE の定義を含む、技術協力プロジェクトの内容について協議した。協議結果に基づき、3月13日(木)に、ハサヌディン大学 Idrus A. Paturusi 学長 と堤団長の間で、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 を参照のこと。調査結果の概要は以下のとおり。

### 2-1 LBE 導入に向けた協議

工学部の教育研究体制の整備に向け、研究室ベースの教育研究体制の具体的な導入方法について協議した。

8月3日には工学部の教員に対してのワークショップ「Workshop on Lab-Based Education」を行い、UNHAS 工学部側から LBE 導入に向けた方針を発表した。詳細については、付属資料 2. ワークショップ「Workshop on Lab-Based Education Sharing」資料を参照のこと。

調査団は全工学部教員が「LBE」にかかる共通の理解を深める必要があると判断し、バンドン工科大学にて LBE 導入の経験を持つサトリオ団員も発表を行った。付属資料 3. サトリオ団員作成 LBE 発表資料を参照のこと。

その後、M/M では以下のとおり LBE における Laboratory の定義を表記し、その他導入計画等を添付した。付属資料 1. ミニッツの ANNEX 2、ANNEX 4 を参照のこと。

Laboratory :

Research infrastructure consisting of faculty members, undergraduate and Graduate Students, and facilities targeting specified education subject and research topics

なお、7月22日にバンドン工科大学にて、日本トインドネシアの他大学の研究室ベースの教育研究体制に関するワークショップを実施した。UNHAS 工学部からも数名の教員が参加し、同システムの在り方について理解した。

### 2-2 具体的な協力計画・方法・内容

#### 2-2-1 PDM の内容、PO 策定に関する協議

UNHAS 工学部に事前配布する PDM に基づき、成果、活動、評価指標について変更・修正した。カリキュラム、シラバスの作成・改訂、教育サイクルの導入については、教育研究体制の基盤整備に必須と考える。なお、各 6 学科の現状は異なるため、PDM は学科の違いに柔軟に対応可能とした。

PDM における Project Purpose においては、「東北インドネシア地域(主にスラウェシ 6 州)」に焦点を当て、UNHAS 工学部の地域の持続的開発に資する人材輩出を目的とし、終了後 5 年後を目安とする Overall Goal では、「東部インドネシア地域」の拠点大学の一つになることを目指す。概要は以下のとおり。

##### (1) プロジェクト目標

東北インドネシア地域の持続的な開発に役立つ人材を輩出するために、UNHAS 工学部の教育・

研究基盤が強化される。

## (2) 成果

- ・工学部における教育が実践/研究を重視した教育になる。
- ・研究活動を通じた教員の教育研究能力が向上する(主に LBE の導入)。
- ・東北インドネシア地域の持続的な開発のニーズに合致したカリキュラムとシラバスに基づく教育が行われる。
- ・工学部において教育サイクルを導入し、内容や教材を改善する。
- ・東北インドネシア地域の工学系機関のコンソーシアムが形成され、UNHAS 工学部がコンソーシアムの中心となる。
- ・工学部の適切な運営に必要な計画管理能力が向上する(主に学部運営機能の向上)。

PO については、フェローシップによる教員の留学、研修参加時期を十分に勘案した上で、PDM で策定された活動内容に基づき、3 年間の協力期間における各活動の実施時期を確定した。

PDM、PO の詳細については付属資料 1. ミニッツの ANNEX 4、ANNEX 5 を参照のこと。

### 2-2-2 技術協力の投入内容に関する協議

前回調査にて確認された日本側投入は、チーフアドバイザー、業務調整を務める長期専門家と各 6 学科に派遣する短期専門家である。

以下の項目を確認し、ほぼ内容の変更なく合意に至った。詳細は付属資料 1. のミニッツを参照のこと。

- ・専門家派遣時期、活動内容 (Terms of Reference)。
- ・研究室の活動に係るセミナー、現地調査の実施支援等、UNHAS 工学部が行う活動費用
- ・UNHAS 工学部側の実施体制 (Project Manager、教員参画体制、執務スペースなど)。特に PIU のプロジェクト開始後の体制について確認。
- ・UNHAS 工学部側の投入。電話代、水道代、光熱費、車両利用(専門家通勤用・フィールド調査用、ガソリン代含む)、ドライバー雇用費用負担、インターネット設置・使用費用など。

### 2-2-3 技術協力プロジェクト実施に向けた今後の予定

2009 年 1 月からのプロジェクト開始(3 年間)を目指し、協力計画の詳細を詰め事前評価表を作成したうえで、11 月上旬に R/D を署名する予定。なお、調査団に参団した九州大学、広島大学、豊橋技術科学大学に、インドネシアにおける高等教育事業を実施中の熊本大学 (スラバヤ工科大学情報技術高等人材育成計画を実施) を含め、4 大学から構成される国内支援委員会を設置する予定。R/D 署名前後に第 1 回委員会を実施する。

## 2-3 円借款プロジェクトとの一体的実施

### 2-3-1 短期フェローシップ(リサーチプログラム)における研修計画・内容に係る助言

円借款プロジェクトとしてフェローシッププログラムを以下 3 形態で実施している。

- (1) 本邦大学との共同研究のための短期リサーチプログラム：6 ヶ月の期間にて 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 人程度を 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。

短期リサーチプログラムにおいては、技プロにおける専門家派遣と関連付け、以下の方針にて、研究能力向上を目的とした研修を実施することとし、UNHAS 側との共通理解を得た。詳細は、付属資料 4. 円借款プロジェクト短期リサーチフェローシップにかかる協議資料を参照のこと。

- ・日本の大学との共同研究の可能性の検討すること。
- ・研究室中心教育のノウハウを確認すること。
- ・帰国後、学科内の他教員と研修成果につき共有すること。

なお、短期リサーチプログラムにおいては、派遣者が過去に博士号を取得している者及び過去に日本に留学経験のある者とされるため、幅広く派遣者を選定できるような制度に改善するよう UNHAS 側に提案した。

また、2008 年 10 月に予定している短期リサーチプログラムの第 1 バッチの派遣予定者との話し合いを通じて、研修内容についての助言を行った。本邦研修先が決定していなかった派遣予定者については、研修先について調査団員である本邦教員が受け入れを行うことを提案したり、所属する大学に受け入れ先を照会したりするなど、派遣に向けての助言、サポートを行った。

なお、第 2 バッチの派遣につき、2009 年 3 月専門家派遣時に候補者への本邦研修先等にて助言を行う予定。

### 2-3-2 機材選定の助言

土木・建築学科以外は選定機材リストの最終化は本調査後と想定されるため、工学部側の求めに応じつつ、引き続き選定について助言を行った。特に海洋学科の新規購入機材リストに含まれている曳航水槽 (Towing Tank) については、2008 年 3 月の「東北インドネシア産業人材育成計画」第一次事前調査の際に参団した肥後団員より、調査後、以下の指摘があった。

- (1) Towing Tank 全体で USD1,500,000 (約 1 億 5000 万円) の購入費用がかかるが、海洋工学学科の教育研究計画が明らかになっておらず、同機材の必要性に疑問が残る。購入の場合、海洋工学学科の新規機材全体は 5 億円を予定しており、そのうちの 3 分の 1 近くを占めることになる。
- (2) Towing Tank の付属施設である水質浄化装置について、コスト軽減のために購入機材リストから除かれているが、もしこれを必要なしとハサヌディン大学工学部教員が判断している場合、Towing Tank を設置し維持管理することの意味を理解していないと思われる。
- (3) Towing Tank は精密機器であり、Towing Tank では一度水を入れた後は排水しない。理由は、排水することによって精密さが保たれないからである。水質を保つためには、Towing Tank は日光の当たらない建物の中に作る必要がある(藻などの生物繁殖を防ぐため)。このよ

うな配慮をしても水が汚れることは防げないので、フィルターなどで水を循環ろ過させる水質維持装置はどうしても必要になる（第一次事前評価時に工学部側に説明済み）。

このような状況から、同学科教員は維持管理の困難さを理解していない可能性があり、本格的な Towing Tank を持つ意義を十分に理解していないと判断せざるを得ない。

今後予想される問題としては、以下3点が挙げられる。

- (1) 海洋学科は、学科の教員の能力以上の規模の Towing Tank を持ったとしても、研究・教育両面で適切に活用をすることができないことが予想される。
- (2) 適切な維持管理を行う教員・スタッフが在籍しておらず、精密機器である Towing Tank は早期に機能を失うことも予想される。
- (3) 現在想定 of Towing Tank は、海洋学科の新規機材の予算の大部分を占めることから、海洋学科の教育・研究の充実に必要となる他の機材の調達が困難となることが予想される。

なお、現地機材担当コンサルタントの報告（2008年5月現在）では、Towing tank に関しては、当初のサイズ(130mLx6mWx4mD)にハサヌディン大学側は執着している。このサイズは国際基準とのこと。海洋学科の新規機材全体の見積もりでは5億円を超えており、予算を1億円以上オーバーしている。従って、現在海外のメーカーを含め、コスト減の提案を依頼中であるとのことである。

肥後教授の指摘とコンサルタントの情報共有に基づき、調査時に小規模(現在ハサヌディン大学が所有している程度の50m~60mの長さ)の Towing Tank にすることを検討し、大学側に改めて以下のとおりに学内で調整・検討を行い、機材選定の最終決定を工学部が行うよう助言した。

- (1) Towing Tank を小規模にすること。
- (2) 水質浄化装置を購入すること。
- (3) 定期的に Towing Tank の維持管理を行うためのルール of 策定、調整コスト of 計上をすること。

最終的に、調査期間中の協議に飯島団員、山下団員、安川団員が参加し助言を行い、後日予算内で規模を小さくすることについて工学部内で一定の結論が得られた。

その他、機材リストを作成中の機械、電気・電子、地質、海洋学科は見積もり段階では予算を超過していたため、調査団員から機材リスト修正の助言を行った。

### 2-3-3 施設建設に関する助言

UNHAS 側の許可に基づく形で、調査の前に円借款プロジェクトの施設建設に関するコンサルタントの情報提供を受けた。提供された情報に対して、坂井団員、サトリオ団員からメールでのやり取りを通じて、以下の項目について質問・助言を行った。

- ・全体デザインにかかる建築学科教員の意見の調整
- ・災害の拠点となった際の対応
- ・実験室の間取りと機材の配置
- ・キャンパスのオープンスペースの確保
- ・周辺地域の開発の関係性(将来、JICAが実施する技術協力プロジェクト「南スラウェシ州マミナサタ広域都市圏環境配慮型都市開発促進プロジェクト」との連携が期待される。)
- ・各教室への2つのドアの設置

## 2-4 学科別協議結果

前回の調査で収集した情報に基づき、各6学科において本邦大学教員との学科別協議を実施した。教育体制(カリキュラム、シラバス等、授業実施・評価)の状況を把握し、問題点・課題を確認、共有した。また、教育研究体制の改善についても協議を行い、プロジェクト期間中の活動計画を検討した。さらに、研究面については、日本の大学との共同研究の可能性について検討した。詳細については、参考資料の学科別協議の結果を参照のこと。

## 2-5 総括所感

堤総括が作成した調査所感は以下のとおり。

第2回の事前調査は技術協力プロジェクトの目的・必要性・枠組みなどをカウンターパートと議論しながらPDM、PO、R/Dのドラフトを作成し、UNHAS側とミニッツを調印することを目的とした。団員はJICAチームとしてサトリオ博士(前インドネシア高等教育総局長)、奥本将勝JICA職員、筆者、そして日本人教員チームとして8人(九州大学4人・広島大学2人・豊橋技術科学大学2人)の総勢11人(九大の1人は後で参加)である。

本年3月に行った第1回の事前調査の際には、UNHASが「研究大学」へ将来進むにはLBE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、すべての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。今回はさらにその概念を詳細に議論した。日本で修士・博士号を取得した教員が10数名いるのでLBEの概念は伝わっていたと思っていたが、現実には「Laboratory」という表現の多様性でいまだにかなりの誤解があることが明確になった。8月3日(日)に「Workshop on Lab-based Education」を開催し、調査チーム全員とUNHAS側約40名が参加した。7月にAUN/SEED-Netプロジェクトの地域会議に併せてバンドンで行われた同種のワークショップの報告を副工学部長が発表し、学科長、教員、調査チームメンバーによる意見交換が行われた。現実にはUNHAS工学部は多くの学科で学部学生の卒業研究(4年後期)はいわゆる「研究室」に入っていくが、テーマの設定が学生自身で行われたり、同じ指導教員のもとで研究を行っている修士学生でも学部学生との接点は全くないというような状態で、同じ指導者のもとでの「Family」を形成するような組織にはなっていない。あるいは、LBEの導入には「予算」が不足しているとか、何か特別な新組織を作るような考えを有している面もあった。

その後の各教員との個別会議などで、誤解をなくすためにLBEの「L」の定義として「Research infrastructure consisting of faculty members, undergraduate and graduate students, and facilities targeting specified education subject and research topics」にすることとした。

PDMのエッセンスは、以下の点である。

- ① 実践教育を目指したカリキュラムの導入
- ② LBEの導入
- ③ 地域ニーズの把握と教育・研究へのフィードバック
- ④ 地域大学コンソーシアムの確立

- ① は日本の工学教育の特質である「実践」を重視した教育により企業・地域に貢献できる人材を養成しようとするものである。UNHAS ではすでに「実験」の割合がかなり高い教育を行っており、③と併せてそれを更にニーズに合う教育にしようと思図している。
- ② は前述のように LBE の導入で教育研究の能率化と研究大学への移行を目指すものである。現実にはほとんど研究活動を行っていない教員（したがって研究費もほとんど有していない）もかなりの割合でいる（研究を行っている割合は学科によりバラツキがあるが 10～30%）ので、全体の LBE 導入は難しいであろう。
- ③ については副学長（-1、-4）との会合において教員が発言していたが、UNHAS に対して企業からの信頼がないため産学連携が進んでいないのが現状である。これを打破するためには、企業あるいは地域のニーズ調査を積極的に行うこと、および大学の研究成果を公開する機会を定期的に設けること、などを Activity に加えた。
- ④ 「UNHAS が東部インドネシアの中核拠点（Center of Excellence: COE）の一つになる」という「Overall Goal」を達成するためには、まずは東北部インドネシアに UNHAS を核にしたコンソーシアムを形成し、教育・研究連携の中心的活動を行うことが重要であるという認識のもとでの活動が④である。

PO については PDM の Activity についてなるべく柔軟性を持たせながらも、プロジェクト期間内に十分な成果が出るよう作成した。

日本人教員チームは各学科に分かれて、前回に引き続く円ローン調達備品の選定の妥当性の評価のほか、教育研究の現状についての把握を行った。授業プログラムの内容・評価、時間割、教員割り振り、カリキュラムの内容、シラバスなどについて、現状と改良すべき点の検討を行った。これらの分析はプロジェクト開始後に短期専門家として派遣される日本人教員の派遣計画、活動様式、活動内容、派遣時期などにフィードバックすることで、プロジェクトの活動が円滑に行われるはずである。また、調査期間中に全教員が主として円ローンにより日本への「博士課程学生」として派遣の決まっている 12 名の教員を相手に「日本の大学の現状」「研究の話題」などの講演、およびサトリオ氏による「日本およびバンドン工科大学での LBE」についての講演が行われた。かなり活発な質疑応答があり、派遣者の意気込みがうかがえる。シニア教官の一部には受動的で旧態依然の傾向があり若手教員のプロジェクトへの取り組みの阻害になる可能性を危惧したが、こういう若手教員が育っていくことで全体の底上げが起こればプロジェクトの成功要因となれば幸いである。また、教員達は円ローンにより 6 ヶ月日本に派遣される候補者たちとのインタビューも行って意向調査をした。

最後になるが、円ローンによる教員派遣についての意見交換も行った。博士課程に入学する長期研修生は正規学生として入学するので、入学試験への対応、入学時期の問題などが提起された。6 ヶ月の短期研修生の日本での研修経費の問題がいまだに明確ではないことで身分の問題が不透明である。

## 結論

昨年 8 月の視察、今年 3 月の第 1 回調査に来訪した時に較べて UNHAS 側の体制も改善され、一般的には意欲の向上が明確である。特に、JICA チームとの会議に参加してくる教員が完全に若手主体となり協議の進行が早かった。しかし、時間のルーズさとか会議中の中座など国民性といえいろいろ

することが多いのは相変わらずである。JICA 担当職員にとってもよい学習の機会だったと思われる。

本プロジェクトは JICA/JBIC 統合後の両組織のプロジェクトが連携する最初の技術協力プロジェクトであり、注目度も高いはずである。しかしながら、連携といっても時期的制約から起こる問題点の解決も重要である。円ローンによる施設・機材の完成・導入は第一バッチである「建築学科」「土木学科」において 2010 年 9 月が予定され、他 4 学科はその半年後の完成・導入が予定されている。予定通りになれば 2 学科はプロジェクトの後半 1 年半、他学科では 1 年間は新キャンパスでの活動になる。LBE の導入などはスペースの関係で新キャンパスでの対応が適当と思われるし、研究活動なども「装置なし」という名目で停滞しているので、プロジェクト前半は「教育活動」への支援が中心になるであろう。日本人派遣の計画・タイミングも当然新キャンパスへの移転と密接な関係がある。

心配なのは、新キャンパス予定地の古い建物の撤去が 3 月以降に全く進んでいなくて予定通りの施設建設が開始されるかどうかである。遅れた場合の影響は甚大であるが、あり得ないことではない。

全体としてはミッションの目的は順調に達成され、8 月 7 日（水）に UNHAS 学長とのミニッツ調印が無事に終了し学長から感謝の意が表明された。





## 付属資料

- 1 ミニッツ
- 2 ワークショップ “Workshop on Lab-Based Education Sharing” 資料
- 3 サトリオ団員 LBE 発表資料
- 4 円借款プロジェクト短期リサーチフェローシップにかかる協議資料
- 5 収集資料
  - ・ ハサヌディン大学工学部 Strategic Plan



**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**

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. Tsutsumi Kazuo conducted a second preliminary study from July 30<sup>th</sup> to August 31<sup>st</sup>, 2008, for the purpose of the implementation of the Technical Cooperation Project “the Development of the Engineering Faculty of the Hasanuddin University”(hereinafter referred to as “the 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.

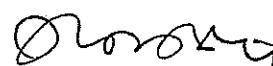
As a result of the discussions, both sides agreed the matters referred to in the document attached hereto.

Makassar, August 6, 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 Introduction

#### 1.1 Background

Indonesia is realizing steady economic growth these years. Its major contributor is in particular manufacturing industries. According to Indonesia's Mid-term Development Plan (RPJM: 2004-2009), Indonesia's higher education sector priority is placed on enhancing industry responsiveness thus contributing to improving the nation's competitiveness with particular intention to develop human resources corresponding to the industrial demands and to enhance engineering and technological research and development ability.

Hasanuddin University need to fulfill the objectives mentioned above. However, lack of facilities, technologies, and human resources of education and research are the barriers to achieve the targets.

Under this situation, Directorate General of Higher Education made a request in August 2007 to Government of Japan. In response to the request, JICA will start the Technical Cooperation Project for the improvement of the educational and research capability linked with the regional sustainable development of northeastern part of Indonesia of the engineering faculty from fiscal year 2008. It is expected that the Project will be implemented comprehensively with the Yen-Loan Project which has already started.

JICA dispatched the first preliminary Study Team on March, 2008 to discuss on the basic framework of the Project. This time, the second preliminary Study Team was dispatched to confirm scope of the Project, relevance of the Project, and the cooperation plan.

#### 1.2 Objective of the study

The major objective of the second preparatory study is summarized below:

- a. To confirm the needs and relevance of the Project
- b. To confirm the objective / goal of the Project
- c. To agree with Indonesian side on the framework of the Project
- d. To agree on Project Design Matrix and Plan of Operation
- e. To confirm the necessary procedure to be followed by both Japanese and Indonesian sides before the launching of the Project
- f. To sign M/M with Indonesian side after above mentioned discussion.

## 2 Framework of the project

### 2.1 Project Title

Both parties agreed that the Project title is “The Development of the Engineering Faculty of the Hasanuddin University”.

### 2.2 Project site

The Project site is Hasanuddin University, Makassar city. The Engineering faculty is planned to move to Gowa district.

### 2.3 Target Group of the Project

Direct target will be the engineering faculty of Hasanuddin University. Technical Cooperation will be focused on education and research activities in the field of engineering and the related field. Indirect beneficiaries will be student of Hasanuddin University, industry and community in the northeastern part of Indonesia which are involved in the joint activities with the faculty.

### 2.4 Duration of the Project

The duration of the Project will be three (3) years.

## 3. Objective of the Project

### 3.1 Overall Goal

The Faculty of Engineering of Hasanuddin University becomes the center of excellence in the eastern part of Indonesia.

### 3.2 Project Purpose

The education and research basis of the faculty, for producing graduates contributing for the sustainable development of the northeastern part of Indonesia, is strengthened.

### 3.3 Output of Project

- (1) Education in the faculty becomes practice/research-oriented.
- (2) The education and research capacity of academic staff through research activities is enhanced.
- (3) Education which is consistent with the needs of regional sustainable development in the

northeastern part of Indonesia is implemented based on the curriculum and syllabus.

- (4) Educational cycle is introduced in the faculty and contents and materials are improved.
- (5) Engineering institution consortium in the northeastern part of Indonesia is set up, of which Hasanuddin University will become the core.
- (6) The planning and management capacity needed for the appropriate management of the faculty is improved.

#### 4. Input by the Japanese side

##### 4.1 Dispatch of Experts

Experts will be dispatched according to the necessity for the implementation of the Project. Following experts are estimated.

- A long-term expert

Chief advisor : (Support for university management, build basic framework for education and research)

Coordinator : (Support for the faculty management, manage and control project)

- Short-term experts

Area of expertise : Civil, Architecture, Mechanical, Electrical, Naval, Geology, Overall Management of research and education and Faculty management

##### 4.2 Expenses to be covered

Necessary expenses for the following activities will be partially allocated:

- Collaborative education and research activities
- Participants to attend conferences and seminars
- Conduct of training, workshops and seminars

#### 5. Input by the Indonesian Side

##### 5.1 Assignment of counterparts

The Project Director (Rector of Hassanuddin University), the Project Manager (Dean of the Engineering faculty) shall be nominated, and Counterpart Personnel shall be all of the academic staffs of the faculty and administrative staffs.

##### 5.2 Project office and Facilities



An available office facility at project site necessary for smooth implementation of the Project such as office furniture, electricity, water supply, fixed telephone line and fax, internet installation and usage will be prepared.

### 5.3 Expenses for the implementation of the project

Necessary expenses for the following activities will be allocated:

- Counterpart funding for collaborative research activities
- Participants to attend national conferences, seminars, training, and workshops
- Conduct of training, workshops and seminars
- Publications to national journals and conferences
- Maintenance of the Project facilities and equipments
- Expense for usage car for local field study and work trip of experts including expense of gasoline and drivers
- Other necessary local expenses of the Project

### 6 Administration of the Project

Hasanuddin University will have the overall responsibility for the Project. Rector of Hasanuddin University will have the responsibility for the management of the Project.

### 7 Project Design Matrix

A Project Design Matrix (hereinafter referred to as "PDM") is usually used for Japanese technical cooperation projects to manage and implement the projects efficiently and effectively. It is also used as a reference for monitoring and evaluating the projects.

The drafted PDM attached in ANNEX 3 will be applied to the Project with the following understanding:

- PDM is a logically designed matrix which defines the initial understanding of the framework for the Project and indicates the logical steps towards the achievement of the Project Purpose.
- PDM is to be flexibly revised according to the progress and achievement of the Project upon agreement between Indonesian side and JICA.

### 8 Tentative Schedule

Drafted Plan of Operations is attached in ANNEX 5.



## 9 Other Relevant Issues

### 9.1 Basic Action Plan of Labo-Based Education

Basic Action Plan of Labo-Based Education of the engineering faculty in Hasanuddin University is attached in ANNEX 4.

### 9.2 Implementation of Research Fellowship Program

The utilization of Research Fellowship Program component of the Yen-Loan Project should have effective linkage with the dispatched Experts and Japanese University Staffs concerning the Project. The meeting of both Japanese and Indonesian side to exchange the view and to share the idea of smooth implementation of the Program will be held on 7<sup>th</sup> of August.

### 9.3 Output of advisory meeting with each department

For better implementation of the both the Project and the Yen-Loan Project, the Japanese Professor Team 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.

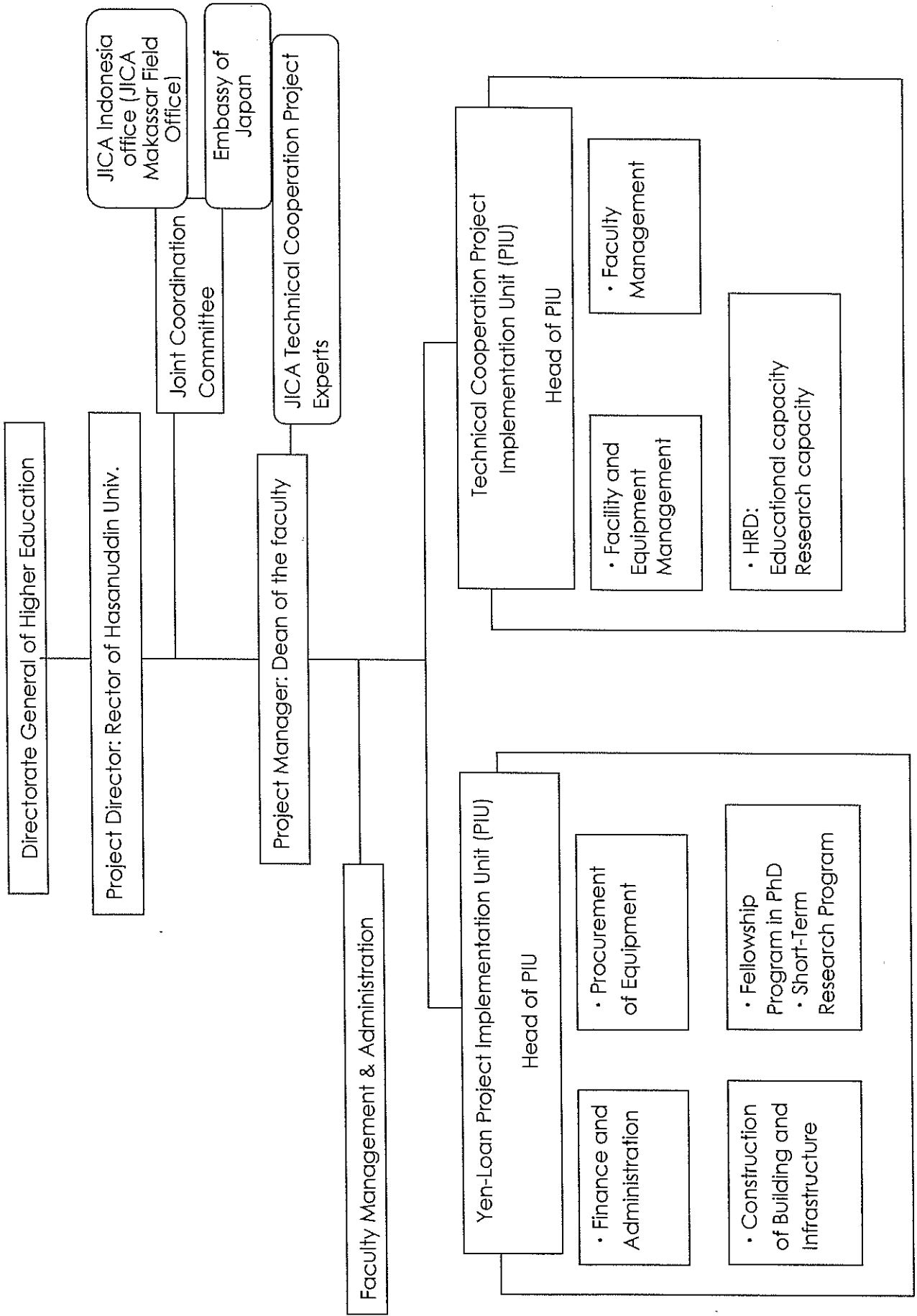
## ANNEXS

- ANNEX 1. Organizational Structure
- ANNEX 2. Basic Action Plan of Laboratory Based Education (LBE)
- ANNEX 3. Project Design Matrix (Draft)
- ANNEX 4. Target of the project
- ANNEX 5. Plan of Operation (Draft)
- ANNEX 6. Record of Discussions (Draft)

END



ANNEX 1. Organizational Structure



## **ANNEX 2. Basic Action Plan of Laboratory Based Education (LBE)**

### **1. Definition of Laboratory:**

Research infrastructure consisting of faculty members, undergraduate and Graduate Students, and facilities targeting specified education subject and research topics

### **2. Objective:**

To improve the quality and relevance of engineering education

### **3. Principles and prerequisites:**

1. Full time professors / lecturers at each laboratory
2. Each student belongs to one laboratory
3. Mentoring system where the senior students assist the junior students
4. Laboratory is designed for problem based learning and/or case based learning
5. Students work in a group or as a team (team work is important)
6. Professors and lecturers act as facilitators and mediators
7. LBE is conducted for the 3<sup>rd</sup> year student and above
8. Availability of student working space / rooms / compartments within the laboratory
9. Laboratory should be equipped with limited equipments / instrumentations , but mostly self-made and/or home-made by faculty – students
10. Closely related to the current research work /grant of the lecturers
11. Student assessment in LBE should be based on the quality of the study result, team work, initiative, leadership, curiosity, knowledge, attitude, and ethics
12. Student research group should solve one case / project per semester
13. Laboratory should be open as long as possible
14. Technicians may be needed for the laboratory as supporting components but actually quality students could be asked for that on part time base
15. Available access to scientific information such as journals, technical reports, codes & standards, references, manuals, etc
16. Adequate computing facilities including basic software
17. If it is too expensive, then the facilities could be shared as common facilities
18. Students and faculty members should be aware that resources are very limited, and that team work is important
19. Typical attitude of LBE is problem solving oriented, and oriented towards the actual problem in industry and community

#### 4. Simulation of LBE at the Faculty of Engineering in Hasanuddin University:

Department of 'X' engineering has 1000 students, 50 faculty members, and 10 laboratories. Since only 3<sup>rd</sup> year students and above participate in LBE, then about 500 students will participate and they will belong to the 10 laboratories. Each laboratory will accommodate 50 students and if they work in two shifts (morning and afternoon) then there are 25 students working in the laboratory at anytime. The laboratory should be designed to accommodate 5 faculty members, 25 students with 5 major equipments.

#### 5. Financial support:

LBE should be financed through research budget from university and other resources such as from DGHE. In order to obtain the DGHE research grant, the faculty members should proactively submit quality proposal since the funding mechanism for research is competitive. If we assume that each laboratory can win a research grant amounting up to Rp. 300 – 400 million per year then LBE can be performed well and at the same time the research program can be undertaken.

The third party (industry and community) can also finance LBE through collaboration where the laboratory provides solution to the third party and they provide research fund to the laboratory under professional agreement.

AS

13

### ANNEX 3. Project Design Matrix (PDM) (Draft)

**Project Title: The Project for the Development of Engineering Faculty of the Hasanuddin University.**

**Project Site: Makassar City, UNHAS**      **Project Term: January 1 2009-December 31 2011**      **Date: August 6 2008**

**Target Group: Academic staff of Departments of Mechanical, Civil, Naval, Architecture, Geology and Electrical & Electronic Engineering in the Faculty of Engineering, UNHAS**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goal</b> The Faculty of Engineering of Hasanuddin University becomes the center of excellence in the eastern part of Indonesia.</p>	<ol style="list-style-type: none"> <li>1. The number of qualified graduates produced, after receiving engineering education suitable for the demand of the eastern part of Indonesia, is increased.</li> <li>2. The number of research useful for the sustainable development of eastern Indonesia is increased.</li> <li>3. The number of joint researches and exchange of academic staff with the universities in the eastern part of Indonesia is increased.</li> </ol>	<ul style="list-style-type: none"> <li>➤ Pathway of graduates from the faculty</li> <li>➤ Research useful for the sustainable development of eastern Indonesia</li> </ul>	
<p><b>Project Purpose</b> The education and research basis of the faculty, for producing graduates contributing for the sustainable development of the northeastern part of Indonesia, is strengthened.</p>	<ol style="list-style-type: none"> <li>1. The activity in the faculty and each department based on Development plan of the faculty is consistently and appropriately implemented.</li> <li>2. Education and research capability is evaluated to be improved after the project.</li> </ol>	<ul style="list-style-type: none"> <li>➤ Development plan of the faculty</li> <li>➤ Report of the faculty</li> <li>➤ Project record</li> <li>➤ Result of the capability evaluation for education</li> <li>➤ Report of research activities</li> </ul>	
<p><b>Outputs</b></p> <ol style="list-style-type: none"> <li>1. Education in the faculty becomes practice/research-oriented.</li> <li>2. The education and research capacity of academic staff through research activities is enhanced.</li> <li>3. Education which is consistent with the needs of regional sustainable development in the northeastern part of Indonesia is implemented based on the curriculum and syllabus.</li> </ol>	<ol style="list-style-type: none"> <li>1.1 The establishment of the basic principles of the curriculum linked with practice/research -oriented engineering education.</li> <li>2.1 Lab-Based Education (LBE) is introduced.</li> <li>2.2 More than 50% of academic staff participates in Labo-Based activities.</li> <li>2.2 The ratio of experiments and practices in curriculum is increased to more than 40%.</li> <li>2.3 More than 50% of third and fourth year students participate in laboratory activity.</li> <li>2.4 Laboratory meeting is weekly held.</li> <li>2.5 Cross-laboratories meeting in each department are implemented more than twice in a year.</li> <li>2.6 More than twice in a year of the workshop to disseminate research activity is implemented.</li> <li>2.7 Semester wise report from each laboratory is submitted.</li> <li>2.8 Each department should acquire at least one significant (one hundred million Rupiah.) external research fund in a year.</li> <li>3.1 Curriculum of each department is reviewed.</li> <li>3.2 Syllabus is annually revised.</li> </ol>	<ul style="list-style-type: none"> <li>➤ List of faculty deployment</li> <li>➤ Basic principle of curriculum</li> <li>➤ List of laboratories members</li> <li>➤ Minutes of cross-laboratory meeting</li> <li>➤ Workshop report</li> <li>➤ Report of Labo-based activities</li> <li>➤ External fund acquired</li> </ul> <ul style="list-style-type: none"> <li>➤ Time schedule</li> <li>➤ Curriculum</li> <li>➤ Syllabus</li> </ul>	<ol style="list-style-type: none"> <li>1. The initial situation of each department makes a difference of the progress and the output through project activities.</li> <li>2. The organization and system is not drastically changed.</li> <li>3. The reviewed curriculum and syllabus is approved by Hasanuddin University.</li> </ol>

<p>4. Educational cycle is introduced in the faculty and contents and materials are improved.</p> <p>5. Engineering institution consortium in the northeastern part of Indonesia is set up, of which Hasanuddin University will become the core.</p> <p>6. The planning and management capacity needed for the appropriate management of the faculty is improved.</p>	<p>4.1 The education according to educational cycle is introduced by each academic staff.</p> <p>4.2 The number of the lecture note for each subject is increased more than 50%.</p> <p>4.3 The instructions for experiments and practices is annually revised and improved.</p> <p>5.1 The establishment of consortium and the number of the participating institution</p> <p>5.2 At least once in a year of the meeting of the consortium is held.</p> <p>5.3 Action plan of the consortiums are made.</p> <p>6.1 5 years action plan of the faculty is made and annually revised.</p> <p>6.2 Short-term and mid-term action plan of each department is formulated.</p> <p>6.3 According to the faculty's fiscal plan, the budget is allocated and managed.</p> <p>6.4 The plan and finance is appropriately implemented by administrative staffs.</p> <p>6.5 The number of public relations through the faculty's activity is increased.</p> <p>6.6 At least one trained technicians is assigned in each department.</p>	<p>Questionnaire for academic staffs</p> <p>Project record</p> <p>Lecture note</p> <p>Instruction for experiments and practices</p> <p>Report of the consortium activity</p> <p>Action plan of the consortiums</p> <p>5 years action plan</p> <p>Short-term and mid-term action plan of each department</p> <p>Fiscal report</p> <p>Publicity matter</p>
<p><b>Activities</b></p> <p>1-1 Introduce plan for practice/research-oriented Education which is prepared and authorized by the faculty.</p> <p>1-2 Secure resource to enhance the understanding of practice/research-oriented Education.</p> <p>2-1 Formulate plan and guideline to transform the assignment of academic staff and research activity into a Labo-based education system.</p> <p>2-2 Submit action plan (research, seminar, workshop, budget) of each laboratory, after laboratories are set up at each department.</p> <p>2-3 Implement workshops to share and discuss each laboratory's activities among academic staff.</p> <p>2-4 Submit activity report from each laboratory.</p> <p>2-5 Acquire external fund on laboratory base.</p> <p>3-1 Set a taskforce in each department for revising curriculum and syllabus with consideration to the principle of practice oriented engineering education.</p> <p>3-2 Grasp social needs of the field of engineering in the northeastern part of Indonesia.</p> <p>3-3 Formulate engineering educational policy in the faculty.</p>	<p><b>Inputs</b></p> <p><b>JAPAN(JICA)</b></p> <p>1. Dispatch of Experts</p> <ul style="list-style-type: none"> <li>Long-term experts</li> </ul> <p>Chief advisor: (Support for university management, build basic framework for education and research)</p> <p>Coordinator: (Support for the faculty management, manage and control project)</p> <ul style="list-style-type: none"> <li>Short-term experts 16 persons dispatched a year</li> </ul> <p>Area of expertise : Civil, Architecture, Mechanical, Electrical, Naval, Geology, Overall Management of research and education and Faculty management</p> <p>2. Necessary Expenses to implement the Project</p> <p><b>Indonesia (UNHAS)</b></p> <ol style="list-style-type: none"> <li>Assignment of C/P (Dean and Academic staff)</li> <li>Allocation of office spaces for experts</li> <li>Necessary local expenses of the project implementation</li> <li>Maintenance of equipment</li> </ol>	<p><b>Preconditions</b></p> <p>The Yen-Loan project is functioned as planned.</p>

	<p>3-4 Review the existing curriculum and syllabus of each department.</p> <p>3-5 Revise and introduce on a trial basis the curriculum and syllabus.</p> <p>4-1 Academic staffs implement courses according to the education cycle.(a cycle of preparation for class and experiment, implementation, evaluation and improvement)</p> <p>4-2 Formulate and revise lecture notes and instruction manuals for experiments and practices according to the features of each subject.</p> <p>4-3 Revise regularly the formulated lecture note.</p> <p>4-4 Monitor the effectiveness of instruction manuals for experiments and practices.</p> <p>4-5 Develop the textbooks based on the lecture notes and the instruction manuals for experiments and practices.</p> <p>5-1 Establish the consortium.</p> <p>5-2 Formulate action plan of the consortium.</p> <p>5-3 Hold the consortium activity among engineering institution in northeastern part of Indonesia.</p> <p>5-4 Implement joint program for education and research among engineering institutions in northeastern part of Indonesia.</p> <p>6-1 Monitor the implementation of the faculty's 5 years action plan and revise the plan appropriately based on introduction of Labo-Based Education.</p> <p>6-2 Formulate and revise short-term and mid-term action plan of each department based on faculty's 5 years action plan.</p> <p>6-3 Formulate the faculty's viable fiscal plan and allocate and manage the budget appropriately by encouraging income generation activities.</p> <p>6-4 Train the academic management staffs to enhance capacity to manage the faculty including six departments.</p> <p>6-5 Conduct public relations activities of the faculty toward the northeastern part of Indonesia.</p> <p>6-6 Develop system of the maintenance of the equipment in each department.</p>
--	---




**ANNEX 4. Target of the Project**

Degree	Semester	Target of the Project	Education and Research style
S1	1-4		(1)Practice (2)Foundation Course
	5-7		(1)Laboratory Based Education(LBE) (2)Practice
	8		(1)LBE (2)Final Project
S2	1-3		(1)LBE (2)Research
	4		(1)LBE (2)Final Project
S3	1-6		(1)LBE (2)Research

↔ Output 1

↔ Output 2-4

*AB*

*hs*

ANNEX 5. Plan of Operation (Draft)

Project Period	Preparation period	1st Year				2nd Year				3rd Year				Responsible Organization	
		I	II	III	IV	I	II	III	IV	I	II	III	IV		
<b>Output 1 Education in the faculty becomes practice/research-oriented.</b>															
1	Introduce plan for practice/research-oriented Education which is prepared and authorized by the faculty.	■	■	■	■										Dean
2	Secure resource to enhance the understanding of practice/research-oriented Education.	■	■	■	■										Dean
<b>Output 2 The education and research capacity of academic staff through research activities is enhanced.</b>															
1	Formulate plan and guideline to transform the assignment of academic staff and research activity into a Labo-based education system	■	■	■	■										Dean
2	Submit action plan (research, seminar, workshop, budget) of each laboratory, after laboratories are set up at each					■	■								Head of Laborateries
3	Implement workshops to share and discuss each laboratory's activities among academic staff.					■		■		■		■		■	Head of Laborateries
4	Submit activity report from each laboratory.													■	Head of Laborateries
5	Acquire external fund on laboratory base.	■	■	■	■	■	■	■	■	■	■	■	■	■	Head of Laborateries
<b>Output 3 Education which is consistent with the needs of regional sustainable development in the northeastern part of Indonesia is implemented based on the curriculum and syllabus.</b>															
1	Set a taskforce in each department for revising curriculum and syllabus with consideration to the principle of practice oriented engineering education.	■	■	■	■										Dean
2	Grasp social needs of the field of engineering in the northeastern part of Indonesia.					■	■	■	■						Heads of Departments
3	Formulate the engineering educational policy in the faculty.			■	■										Dean
4	Review the existing curriculum and syllabus of each department.			■	■										Heads of Departments
5	Revise and introduce on a trial basis the curriculum and syllabus.								■	■	■	■	■	■	Heads of Departments
<b>Output 4 Educational cycle is introduced in the faculty and contents and materials are improved.</b>															
1	Academic staffs implement courses according to the education cycle.(a cycle of preparation for class and experiment, implementation, evaluation and improvement)			■	■	■	■	■	■	■	■	■	■	■	Heads of Departments
2	Formulate and revise lecture notes and instruction manuals for experiments and practices according to the features of each subject.			■	■										Heads of Departments
3	Revise regularly the formulated lecture note.					■		■		■		■		■	Heads of Departments
4	Monitor the effectiveness of instruction manuals for experiments and practices.					■		■		■		■		■	Heads of Departments
5	Develop the textbooks based on the lecture notes and the instruction manuals for experiments and practices.								■	■	■	■	■	■	Heads of Departments
<b>Output 5 Engineering institution consortium in the northeastern part of Indonesia is set up, of which Hasanuddin University will become the core.</b>															
1	Establish the consortium.			■	■										Dean
2	Formulate action plan of the consortium.					■	■		■	■		■	■		Dean
3	Hold the consortium activity among engineering institution in northeastern part of Indonesia.					■		■		■		■		■	Dean
4	Implement joint program for education and research among engineering institutions in northeastern part of Indonesia.								■	■		■	■		Dean
<b>Output 6 The planning and management capacity needed for the appropriate management of the faculty is improved.</b>															
1	Monitor the implementation of the faculty's 5 years action plan and revise the plan appropriately based on introduction of Labo-Based Education			■	■	■	■	■	■	■	■	■	■	■	Dean
2	Formulate and revise short-term and mid-term action plan of each department based on faculty's 5 years action plan.								■	■		■	■		Heads of Departments
3	Formulate the faculty's viable fiscal plan and allocate and manage the budget appropriately by encouraging income generation activities.					■	■	■	■	■	■	■	■	■	Dean
4	Train the academic management staffs to enhance capacity to manage the faculty including six departments.				■				■				■		Dean
5	Conduct public relations activities of the faculty toward the northeastern part of Indonesia.					■	■	■	■	■	■	■	■	■	Dean
6	Develop system of the maintenance of the equipment in each department.					■	■	■	■	■	■	■	■	■	Vice Dean II

AS

6



**(Draft)**  
**RECORD OF DISCUSSIONS**  
**BETWEEN**  
**JAPAN INTERNATIONAL COOPERATION AGENCY**  
**AND**  
**AUTHORITIES CONCERNED OF THE GOVERNMENT OF**  
**INDONESIA**  
**ON**  
**JAPANESE TECHNICAL COOPERATION**  
**FOR**  
**THE DEVELOPMENT OF**  
**THE ENGINEERING FACULTY OF THE HASANUDDIN**  
**UNIVERSITY**

Japan International Cooperation Agency (hereinafter referred to as "JICA") and Indonesian authorities concerned had series of discussions for the purpose of working out the details of the technical cooperation program concerning the project "the Development of the Engineering Faculty of the Hasanuddin University".

Both sides exchanged views and had a series of discussions with respect to desirable measures to be taken by JICA and Indonesian Government for the successful implementation of the above mentioned Project.

As a result of the discussions, JICA and Indonesian authorities concerned agreed on the matters referred to in the document attached hereto.

Makassar or Jakarta, September, (date), 2008

---

**Mr. Sakamoto Takashi**  
Resident Representative  
Japan International Cooperation Agency  
Indonesia Office

---

**Dr. Fasil Jalal**  
Directorate General of Higher Education,  
Ministry of National Education,  
Republic of Indonesia

## THE ATTACHED DOCUMENT

### I. COOPERATION BETWEEN JICA AND GOVERNMENT OF INDONESIA

1. The Government of the Republic of Indonesia will implement the "Technical Assistance for the Development of the Engineering Faculty of the Hasanuddin University" (hereinafter referred to as "the Project") in cooperation with JICA.
2. The Project will be implemented in accordance with the Master Plan which is given in Annex I.

### II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan and the provisions of Article III of the Agreement, JICA, as the executing agency for technical cooperation by the Government of Japan, will take, at its own expense, the following measures according to the normal procedures of its technical cooperation scheme.

#### 1. DISPATCH OF JAPANESE EXPERTS

JICA will provide the services of the Japanese experts as listed in Annex II. The provision of Article IV, V and VI of the Agreement will be applied to the above-mentioned experts.

#### 2. TRAINING OF INDONESIAN PERSONNEL IN JAPAN

JICA will receive the Indonesian personnel connected with the Project for technical training in Japan.

#### 3. PROVISION OF MACHINERY AND EQUIPMENT

JICA will provide such machinery, equipment and other materials (hereinafter referred to as "the Equipment") necessary for the implementation of the Project as listed in Annex VI. The provision of Article VII of the Agreement will be applied to the Equipment.

### III. MEASURES TO BE TAKEN BY THE GOVERNMENT OF INDONESIA

1. The Government of the Republic of Indonesia will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.
2. The Government of the Republic of Indonesia will ensure that the technologies and

knowledge acquired by the Indonesian nationals as a result of the Japanese technical cooperation will contribute to the economic and social development of Indonesia.

3. In accordance with the provisions of Article IV, V and VI of the Agreement, the Government of the Republic of Indonesia will grant in Indonesia privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families.
4. In accordance with the provisions of Article VII of the Agreement, the Government of the Republic of Indonesia will take the measures necessary to receive and materials carried in by the Japanese experts referred to in II-1 above.
5. The Government of Indonesia will take necessary measures to ensure that the knowledge and experience acquired by the Indonesian personnel from technical training in Japan will be utilized effectively in the implementation of the Project.
6. In accordance with the provision of Article IV of the Agreement, the Government of the Republic of Indonesia will provide the services of Indonesian counterpart personnel and administrative personnel as listed in Annex III.
7. In accordance with the provision of Article IV of the Agreement, the Government of the Republic of Indonesia will provide the buildings and facilities as listed in Annex IV.
8. In accordance with the laws and regulations in force in Indonesia, the Government of the Republic of Indonesia will take necessary measures to supply or replace at its own expense machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project
9. In accordance with the laws and regulations in force in Indonesia, the Government of the Republic of Indonesia will take necessary measures to meet the running expenses necessary for the implementation of the Project.

#### IV. ADMINISTRATION OF THE PROJECT

1. Rector of Hasanuddin University, as the Project Director, will bear overall responsibility for the administration and implementation of the Project.
2. Dean of the faculty engineering, as the Project Manager, will be responsible for the managerial and technical matters of the Project.
3. The Japanese Team Leader will provide necessary recommendations and advice to the



Project Director and the Project Manager on any matters pertaining to the implementation of the Project.

4. The Japanese experts will give necessary technical guidance and advice to Indonesian counterpart personnel on technical matters pertaining to the implementation of the Project.
5. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee will be established whose functions and composition are described in Annex V.

## V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA and the Indonesian authorities concerned, during the last six months of the cooperation term in order to examine the level of achievement.

## VI. CLAIMS AGAINST JAPANESE EXPERTS

In accordance with the provision of Article VI the Agreement, the Government of the Republic of Indonesia undertakes to bear claims, if any arises, against the Japanese experts engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in Indonesia except for those arising from the willful misconduct or gross negligence of the Japanese experts.

## VII. MUTUAL CONSULTATION

There will be mutual consultation between JICA and the Government of the Republic of Indonesia on any major issues arising from, or in connection with this Attached Document.

## VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of Indonesia, the Government of the Republic of Indonesia will take appropriate measures to make the Project widely known to the people of Indonesia.

## IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this Attached Document will be 3 years from (day January or February) 2009.

ANNEX I	MASTER PLAN
ANNEX II	LIST OF JAPANESE EXPERTS
ANNEX III	LIST OF COUNTERPART AND ADMINISTRATIVE PERSONNEL
ANNEX IV	LIST OF BUILDINGS AND FACILITIES
ANNEX V	JOINT COORDINATING COMMITTEE
ANNEX VI	LIST OF MACHINERY AND EQUIPMENT



## MASTER PLAN

### 1. Overall Goal

The Faculty of Engineering of Hasanuddin University becomes the center of excellence in the eastern part of Indonesia.

### 2. Project Purpose

The education and research basis of the faculty, for producing graduates contributing for the sustainable development of the northeastern part of Indonesia, is strengthened.

### 3. Outputs

- (1) Education in the faculty becomes practice/research-oriented.
- (2) The education and research capacity of academic staff through research activities is enhanced.
- (3) Education which is consistent with the needs of regional sustainable development in the northeastern part of Indonesia is implemented based on the curriculum and syllabus.
- (4) Educational cycle is introduced in the faculty and contents and materials are improved.
- (5) Engineering institution consortium in the northeastern part of Indonesia is set up, of which Hasanuddin University will become the core.
- (6) The planning and management capacity needed for the appropriate management of the faculty is improved.

### 4. Activities

Output (1) Education in the faculty becomes practice/research-oriented.

- (1-1) Introduce plan for practice/research-oriented Education which is prepared and authorized by the faculty.
- (1-2) Secure resource to enhance the understanding of practice/research-oriented Education.

Output (2) The education and research capacity of academic staff through research activities is enhanced.

- (2-1) Formulate plan and guideline to transform the assignment of academic staff and research activity into a Labo-based education system.
- (2-2) Submit action plan (research, seminar, workshop, budget) of each laboratory, after laboratories are set up at each department.
- (2-3) Implement workshops to share and discuss each laboratory's activities among academic staff.

(2-4) Submit activity report from each laboratory.

(2-5) Acquire external fund on laboratory base.

Output (3) Education which is consistent with the needs of regional sustainable development in the northeast part of Indonesia is implemented based on the curriculum and syllabus.

(3-1) Set a taskforce in each department for revising curriculum and syllabus with consideration to the principle of practice oriented engineering education.

(3-2) Grasp social needs of the field of engineering in the northeastern part of Indonesia.

(3-3) Formulate engineering educational policy in the faculty.

(3-4) Review the existing curriculum and syllabus of each department.

(3-5) Revise and introduce on a trial basis the curriculum and syllabus.

Output (4) Educational cycle is introduced in the faculty and contents and materials are improved.

(4-1) Academic staffs implement courses according to the education cycle.(a cycle of preparation for class and experiment, implementation, evaluation and improvement)

(4-2) Formulate and revise lecture notes and instruction manuals for experiments and practices according to the features of each subject.

(4-3) Revise regularly the formulated lecture note.

(4-4) Monitor the effectiveness of instruction manuals for experiments and practices.

(4-5) Develop and revise the educational materials based on the lecture notes and the instruction manuals for experiments and practices.

Output (5) Engineering institution consortium in the northeastern part of Indonesia is set up, of which Hasanuddin University will become the core.

(5-1) Establish the consortium.

(5-2) Formulate action plan of the consortium.

(5-3) Hold the consortium activity among engineering institution in northeastern part of Indonesia.

(5-4) Implement joint program for education and research among engineering institutions in northeastern part of Indonesia.

Output (6) The planning and management capacity needed for the appropriate management of the faculty is improved.

(6-1) Monitor the implementation of the faculty's 5 years action plan and revise the plan appropriately based on introduction of Labo-Based Education.

(6-2) Formulate and revise short-term and mid-term action plan of each department based on

faculty's .5 years action plan.

(6-3) Formulate the faculty's viable fiscal plan and allocate and manage the budget appropriately by encouraging income generation activities.

(6-4) Train the academic management staffs to enhance capacity to manage the faculty including six departments.

(6-5) Conduct public relations activities of the faculty toward the northeastern part of Indonesia.

(6-6) Develop system of the maintenance of the equipment in each department.

(end)





**LIST OF JAPANESE EXPERTS**

Experts will be dispatched according to the necessity for the implementation of the Project. Following experts are estimated.

<Long Term Experts>

- (1) Chief advisor: (Support for university management, build basic framework for education and research)
- (2) Coordinator: (Support for the faculty management, manage and control project)

<Short Term Experts>

Area of expertise : Civil, Architecture, Mechanical, Electrical, Naval, Geology, Overall  
Management of research and education and Faculty Management



**LIST OF COUNTERPART PERSONNEL**

1. Counterpart for Technical Cooperation

- (1) Project Director: Rector of Hasanuddin University
- (2) Project Manager: Dean of the Engineering Faculty
- (3) Project Implementation Unit of the Engineering Faculty
- (4) All of the academic staff of the faculty and administrative staff.



**LIST OF BUILDINGS AND FACILITIES**

1. Land, building and facilities necessary for the Project
2. Office and basic logistical facilities for the Expert Team
3. Other facilities mutually agreed upon as necessary



## JOINT COORDINATING COMMITTEE

The Joint Coordinating Committee, which consists of both Indonesian side and Japanese side, will be established for the smooth and effective implementation of the Project.

### 1. Functions

The Joint Coordinating Committee will meet when necessary and at least once a year in order to fulfill the following functions:

- (1) To formulate the annual work plan of the Project and to coordinate and monitor the overall progress of the Project based on the Plan of Operation (PO) within the framework of the Record of Discussions (hereinafter referred to as "R/D")
- (2) To review the results of the annual work plan and the progress of the Project
- (3) To review and exchange views on major issues that may arise during the implementation of the Project

### 2. Membership

The members of the Committee shall comprise:

- Chairperson: Director General, DGHE, Ministry of National Education
- Vice-chairperson: Rector of Hasanuddin University
- Members: Dean of the Engineering faculty of Hasanuddin University
  - All Vice Dean of the Engineering faculty of Hasanuddin University
  - Representative BAPENNAS
  - Head of the Project Implementation Unit
  - Resident Representative of JICA Indonesia Office
  - Chief adviser of the Project
  - JICA Experts
- Observers: Officials of the Japanese Embassy in Indonesia
  - Other personnel invited by JCC

Note: Official(s) of Embassy of Japan, as well as representative(s) from Japanese Supporting University Consortium may attend the Joint Coordinating Committee as observer(s).




**LIST OF MACHINERY AND EQUIPMENT**

1. Equipment for common and general use of project management
2. Equipment for research activities
3. Equipment for educational activities

Note:

- (1) The above mentioned equipment should be strongly related with the Project activities by the JICA experts.
- (2) The detailed specification and quantity of the above mentioned equipment to be provided each year will be discussed in principle every year between JICA experts and Indonesian counterpart personnel, based on the annual plan of the Project, within the allocated budget of the Japanese Fiscal Year (JFY: start in April and end in March).



### Workshop on Lab Based Education

Date : Sunday, 3 August 2008  
 Time : 14:00 – 17:00  
 Venue : Malino Room, Hotel Sahid Makassar 2<sup>nd</sup> Floor  
 Participants : Total: 100 persons:  
 Dean, Vice Dean, Head of Department (6), Secretary of Department (6),  
 Head of Laboratory (44), Head of Study Program (11), PIU (6), Professor  
 (22), JICA Study Team (10), JICA MFO (3).

Time	Agenda	Remark
14:00-14:10 (10)	Introduction	JICA MFO or JICA Study Team MC: JICA Study Team
<b>I. Experience of LBE Workshop in Bandung by UNHAS</b>		
14:10-14:40 (30)	Presentation: Experience of LBE Workshop in Bandung by UNHAS	<b>Moderator:</b> Dr. Rudy Djamaluddin ST, MEng (Lecturer, Civil Engineering Department)  <b>Presenter:</b> Rafiuddin Syam ST, MT, PHd (Lecturer, Mechanical Engineering Department)
14:40-15:00 (20)	Q & A and Coffee Break in the room	
<b>II. Discussion on Direction of Unhas' LBE</b>		
15:00-15:30 (30)	Presentation: Unhas' Definition of LBE	<b>Moderator:</b> Dr. Rudy Djamaluddin ST, MEng  <b>Presenter:</b> – Dr. Ing Ir. Wahyu H. Piarah, MSME (Vice Dean) and – Dr. Ir. Zahir Zainuddin M.Sc. (Head, Electrical Engineering Department)
15:30-15:50 (20)	Comment from JICA Study Team	
15:50-16:10 (20)	Q & A	
<b>III. Discussion on Implementation Structure</b>		
16:10-16:30 (20)	Discussion on Implementation Structure By UNHAS	<b>Moderator:</b> Rudy Djamaluddin ST, MEng
16:30-16:40 (10)	Wrap up	

# Laboratory Based Education (EF-Unhas' Definition )

By  
Wahyu H Piarah

1

## Education

---

- Unhas policy: Teaching → Learning
- Teaching method: teacher
- Learning method: student → SCL (Student Centered Learning)
- Unhas target:
  - 20 % --2008
  - 50% -- 2009
  - 100 % -- 2010

2

## SCL Models

---

- Problem-Based Learning (PBL)
- Project-Based Learning (PjBL)
- Collaborative Learning (CbL)
- Experiential Learning (EL)
- Computer-Assisted Learning (CAL)
- Case Study (CS)
- Cooperative Learning (CL)
- Self-Directed Learning (SDL)
- Contextual Instruction (CI)
- Role-Play and Simulation
- Combine Model / Blending Model

**LBE**, appropriate to accomodate SCL

3

## Laboratory

---

- Lab lay out
- Facilities/equipment: for education and researsch
- Management;
  - Organization
  - Job description
  - Facility : efficient and effective
  - Administration
- Supporting staff:
  - Lecturer: Prof. and Ass. Prof.
  - Technician
  - Student: doctor, master and undergraduate
- Budget

4

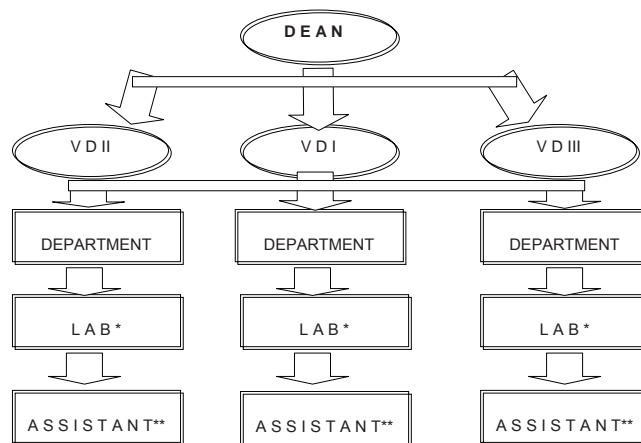


## EF of Unhas' Laboratory

- Room only for equipment and head of laboratory
- Equipment: only for demonstration; lack of research facilities
- Management: not well organized
- Supporting staff:
  - Head/Secretary of lab
  - Technician: unskilled
  - Assistant: S1 student
- Budget; ± Rp2jt /years/lab

5

## Lab Organisation of EF



\* and \*\* Helped by Technician

6

## Lab work portion

Study Program	Lab Work (SKS ; %)	Industrial Work (SKS)	Society Work (SKS)	Final Project (SKS)	Total (SKS)
Civil	14 ; 9,27	2	4	4	151
Mechanical	15 ; 10,42	2	4	4	144
Industry	7 ; 4,86	2	4	4	144
Naval Arch.	14 ; 9,72	3	4	6	144
Naval System	14 ; 9,59	3	4	6	146
Ocean	14 ; 9,59	4	4	6	146
Electrical	15 ; 10,42	2	4	6	151
Architecture	44 ; 29,14	6	4	8	151
Planology	16 ; 10,67	6	4	8	150
Geology	27 ; 18,75	2	4	6	144
Mining	22 ; 15,17	2	4	6	145

7

## Conclusion

- LBE in EF of Unhas is necessity
- Curriculum must be change to “lab-based” curriculum
- Lab management and organisation must be design for LBE
- EF needs support to become LBE (from JICA)

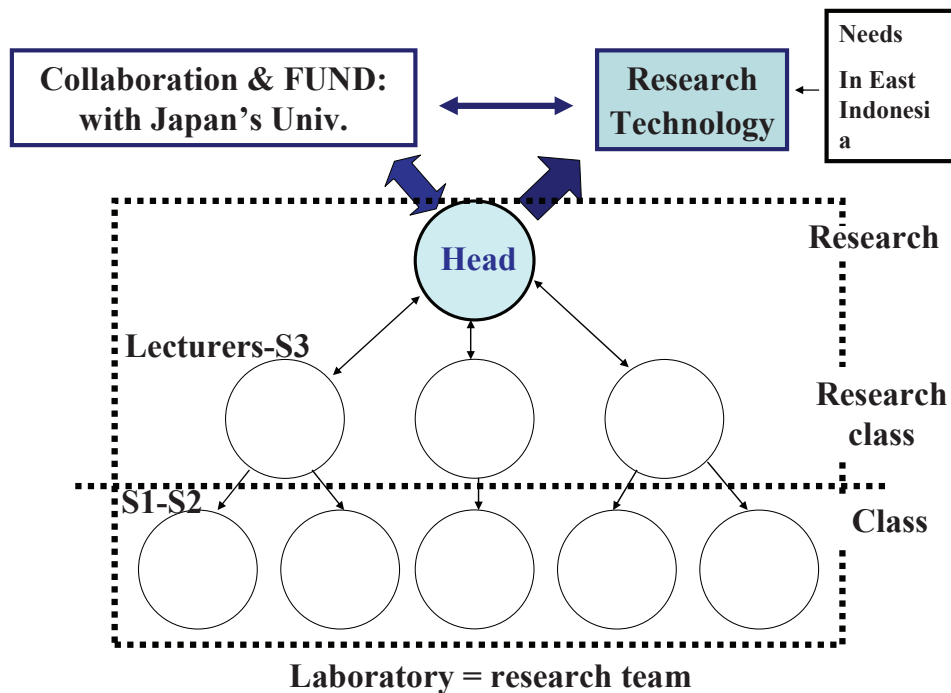
8

## Comments

### WS on Labo-Based Education

by Takao YAMASHITA (IDEC, Hiroshima University), August 5, 2008

- **SCL** is good system. But, it is for undergraduate education.
- Definition of “**Laboratory**“ is the **research team** that consists of several students and lecturers.
- Group of “**Laboratory**“ is the **department**.
- **Head of Laboratory** is responsible to (1)research orientation, (2) getting fund, (3) teaching students and lecturers in the Labo.
- Head of Laboratory is mainly a Lecturer or Professor in UNHAS.
- Research in UNHAS should be responsible for **needs in East Indonesia Region**.
- Research level should be increased with supports of **overseas partner university**, such as Japan’s university.
- To find the **partner Laboratory** in university is important for future progress.
- The partner university should be the **source of fund, technology, research themes, visiting professors, and exchange students**.
- **Research results** can be **sources of education** in Graduate student level.
- Salary (from research fund), quality of education & research should be increased by **LBE**.
- LBE have to get **fund from DGHE**.



## Laboratorium Based Education (LBE)

*Satryo Soemantri B.  
Visiting Professor  
Toyohashi University of Technology,  
Japan*

### Objectives

- To improve the quality and relevance of engineering education
- To increase faculty members involvement in research
- To increase students involvement in laboratory
- To enhance 'student centered learning' process
- To increase faculty members vs students interaction

## Principles & Prerequisites

- Full time professors / lecturers at each laboratory
- Each student belongs to one laboratory
- Mentoring system where the senior students assist the junior students
- Laboratory is designed for problem based learning and / or case based learning
- Students work in a group or as a team (team work)

## Principles & Prerequisites (2)

- Professors and lecturers act as facilitators and mediators
- LBE is conducted for the 3<sup>rd</sup> year student and above
- Availability of student working space / rooms / compartments within the laboratory
- Laboratory should be equipped with limited equipments / instrumentations, but mostly self-made and / or home-made by faculty-students

## Principles & Prerequisites (3)

- Closely related to the current research work / grant of the lecturers
- Student assessment in LBE should be based on the quality of the study result, team work, initiative, leadership, curiosity, knowledge, attitude, and ethics
- Student research groups should solve one case / project per semester
- Laboratory should be open as long as possible

## Principles & Prerequisites (4)

- Technicians may be needed for the laboratory as supporting component but actually quality student could be asked for that on part time base
- Available access to scientific information such as journals, technical reports, codes & standards, references, manuals, etc
- Adequate computing facilities including basic software

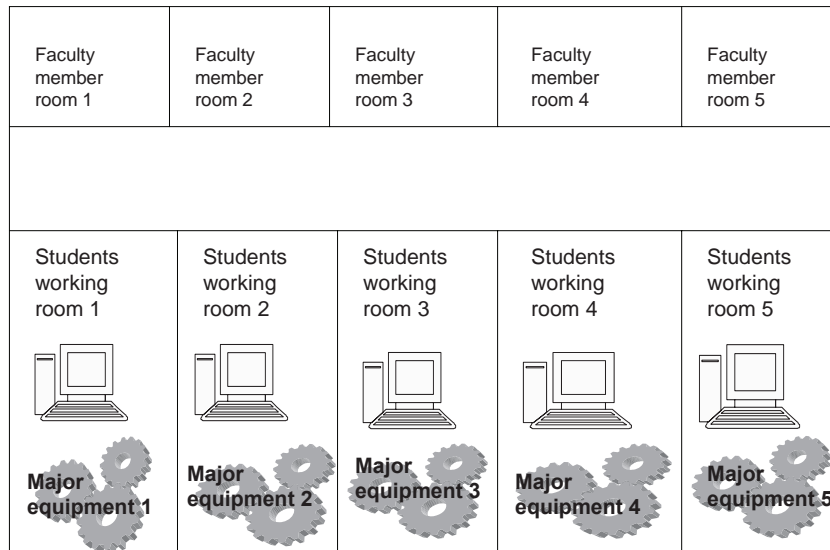
## Principles & Prerequisites (5)

- If it is too expensive, then the facilities could be shared as common facilities
- Students and faculty members should be aware that resources are very limited
- Typical attitude of LBE is problem solving oriented, and oriented towards the actual problem in industry and community

### LBE simulation for 'X' engineering department

- Number of students : 1000
- Number of faculty members : 50
- Number of laboratories : 10
- Number of students ( 3<sup>rd</sup> & 4<sup>th</sup> year) : 500
- Number of students working in each lab at each shift (there are 2 shifts) : 25
- Laboratory size : 5 faculty members , 25 students, 5 major equipments / apparatus

## Laboratory layout



## Financing Schemes

- Each laboratory wins at least one research grant (Hibah Bersaing/Rusnas/dll) from Dikti/Ristek
- Each grant is Rp. 100 – 300 millions per year ( for 3 years)
- The research is conducted by the research group consists of faculty members and students
- Each laboratory should also obtain projects from industry



### Research Arrangement in the Laboratory

- The topic/theme of the research grant can be divided into several sub topic / sub theme
- Each of the sub topic / sub theme is conducted by the students research group led by the faculty member
- The outputs of the students research group activities can be in the form of skripsi (final year project) or master thesis

### Research Arrangement in the Laboratory (2)

- The outputs from the researchers (faculty members) are scientific publications in the refereed journal
- The outputs from the laboratory can be in the form of patents, new inventions, etc.

Short Term Research Program to Japan (Fellowship Program)

1. Contents of Short Term Research Program to Japan

- 1<sup>st</sup> Batch 6 persons (1 person from each department)
- 2<sup>nd</sup> Batch 10 persons
- 3<sup>rd</sup> Batch 10 persons
- Total 26 persons

Period of stay in Japan: 6 months for each person

2. Objectives of the Program

- (1) Short term research in the field interested by professor of UNHAS(\*)

(\*) Field of research need to be well based on development program of UNHAS (development needs of Eastern Indonesia and field of comparative advantage for UNHAS)

- (2) To have better understanding of Labo-based Research and Education System in Japan(\*) and to consider how to introduce the system in UNHAS.

- (\*) ① How Japanese professors and students are forming 'labo' team and communicating each other.  
② How they are finding ideas of future research, finding solutions of problems they are facing.  
③ How Labo-based education is functioning in the team, how members of the team are sharing information and knowledge  
④ How they are maintaining facilities and equipments for research activities etc.  
⑤ One scientific publication jointly authored with the professor and the manual of Labo-based education best practice.

⇒the fellow returns to UNHAS and immediately implements Labo-based Education in the department and also provides Labo-based education workshop for other faculty members within the faculty.

- (3) To get advice from Japanese professor(s) with regard to curriculum of UNHAS

- (4) To find ideas for future joint research program between UNHAS and Japanese universities

(5) Establish close relationship between UNHAS and Japanese universities (including human relationship between both side)

→ number of Japanese counterpart university is better to be limited

### 3. **Criteria for selecting appropriate candidates of the Program**

- (1) Has research mind to change UNHAS 'culture' and to create new atmosphere.
- (2) Has research theme which will be carried out in Japan consistent to UNHAS strategic plan and which can be supported by Japanese university/professor.
- (3) Has good communication capacity in (at least) English

### 4. **Other points**

(1) Departure timing of first batch researchers to Japan should be flexible.

→ October 2008 is actual planned departure timing for 1<sup>st</sup> batch set by UNHAS side , but it is better not to stick too much on such timing, because it needs careful screening of candidates and enough preparation for study in Japan(including coordination with Japanese universities concerned)

(2) Necessity for coordination between UNHAS and JICA side before deciding candidates of the short term fellowship program (in particular, 2<sup>nd</sup> and 3<sup>rd</sup> batch)

→ JICA /Japanese professor side will give advice/assistance to UNHAS side taking account of Labo-based research/education aspect and will play intermediary role between candidates and Japanese universities

(3) After completing short term program and coming back to Makassar, each researchers is requested to report their experience in Japanese universities to other professors, and to participate in review process work of new curriculum

(End)

**THE STRATEGIC PLAN  
OF  
THE ENGINEERING FACULTY DEVELOPMENT  
HASANUDDIN UNIVERSITY**



**FACULTY OF ENGINEERING  
HASANUDDIN UNIVERSITY  
JULY 2006**

## **PART I INTRODUCTION**

### **1.1 Background**

Following the growing of Indonesian economic, the major contributor of Gross Regional Domestic Bruto is manufacturing industries. This based on the fact that from the contributor to the GRDP 2002 and 2003, the manufacturing industries is a highest contributor. In the same year, the second and third major contributors are agriculture and trade. However, regarding to the industrial structures, most of industries are concentrated in the western part of Indonesia. This shows an unbalanced industrial development between western part of Indonesia and eastern part of Indonesia. Responding the unbalanced industrial development, the government should implement a strategy to minimize the unbalanced condition.

The factor causing the unbalanced condition is the unbalancing of the universities development itself. Most of the universities at Western part of Indonesia have good facilities in education and research whereas the universities at the Eastern part of Indonesia have poor facilities especially in researches. Already be a fact that the universities quality has a high relation to the output quality that become a main component in the development of the Industries at the region.

### **1.2 National Education Settings**

The strategic plan of The Engineering Faculty of Hasanuddin University must be integrated with the National Education Strategic Plan which therefore this document of strategic plan must include the National Education settings and Hasanuddin University's Institutional settings where the Faculty of Engineering belongs to.

The National MEDIUM TERM DEVELOPMENT PROGRAM (Presidential Decree 7/2005), indicates the general strategy for the higher education development as follow:

- Increase public access for quality higher education (Diploma, S2, S2/S3), which is relevant to the manpower market requirement.
- Development of science, technology, and arts which is contributing to the public welfare.

Based on this general strategy, the main programs of the higher education institution are:

- Develop rules and regulation governing the higher education.
- Support the manpower need for the 9 – year compulsory education.
- Develop infrastructures to support the academic programs (including development of qualified staff).
- Develop curriculum in line with international standards and equipments.
- Provide operational cost.
- Develop *tridarma* programs in line with the public needs
- Develop cooperation between industry and a regional governments
- Develop information for the public.
- Monitor and evaluate the higher education system to improve transparency, accountability public participation and democracy.

This general guidance was developed by the MINISTRY OF NATIONAL EDUCATION into a more detail strategic plan which focused on the

development of The VISION of national education which is: The development of an **INDONESIAN MANKIND** who is **INTELLIGENT** and **COMPETITIVE**:

In line with this vision, the **MISSION** and **GOALS** of the national education was developed which among others are;

- Develop the national education system which enables the achievement of the mission of the national education system.
- Develop the mission into the national education Strategic **GOALS**

The **GOALS** among others are:

- Develop religious education systems.
- Improve esthetics and ethics.
- Developed access to all level of education.
- Finalize the compulsory 9 – year education.
- Decrease illiteracy level.
- Access to non-formal education.
- Improve national competitiveness.
- Improve relevancy of education through the development of *minimum service standards*.
- Improve relevancy of education to market needs.
- Improve effective and effectively of the education system.
- Fight corruption within the national education system.

These **goals** of the national education are channeled through a *three pillar* strategy which is:

- Improving accessibility.
- Improving quality.
- Developing good governance of the national education system.

For the higher education system, this strategy is developed into the following targets programs like:

- a) IMPROVING ACCESS through (targets are: 4,5 students at 2009).
  - Fellowship for low income group of the populations ;
  - Develop partnership programs between teacher trainings institution and schools.
  - Develop distance education system.
  
- b) IMPROVE QUALITY, RELEVANCY and COMPETITIVENESS ;
  - Improve research and public service programs.
  - Develop quality curriculum and effective learning system.
  - Development of community college to fulfill local needs.

The target developments are:

- 3000 study programs at A or B level.
- Development of World Class study programs (32) and Universities (4).
- Decrease study time.
- Reach enrollment level 20% for S2 programs and 30% for diploma programs.
- Decrease waiting time for graduates (to get jobs).
- Improve competitiveness for the higher education system by putting 4 (four) Universities in the list of the 1000 best Asian Universities.



- 50% of the public institution has full autonomy (40% for the private institution).
- Reached the proportion of humanities (soft science) to hard science from the present 30:70 to become 35; 65 by 2009.
- Proportion of PhD holder/MS are 85% for public institutions and 55% for public institution on 2009.
- Training for technicians (100 skill and 7500 technicians trained by 2009).
- Improve budget for research (1% of the national higher education budget) and improve patents application.
- Increase computer literacy.
- Development of the infrastructure (laboratory and class room).
- Improve the library system of the Universities.

c). IMPROVE GOVERNANCE, ACCOUNTABILITY and PUBLIC ACCEPTANCE

- Development of the full autonomy of the Universities which are accountable, transparent to the public 50% for the public institutions and 40% for the private institutions.
- Development internal audit system within the Universities.
- Improve and expend competitive based funding system.

### **1.3 Regulations concerning establishment of an university/faculty**

Regulation concerning an establishment of a new university or institute has been arranged in Act of the Republic of Indonesia on National Education System (Act Number 20, year 2003).

Whereas:

1. The Preamble of the 1945 Constitution has mandated that the Government of the Republic of Indonesia protect the whole nation and their entire native land to promote public welfare, to increase the intellectual life of the whole nation, and to take part in world peace keeping based on independence, everlasting peacefulness, and social justice.
2. The 1945 Constitution has mandated that the Government organize and run one national system of education based on legal provisions to strengthen the people's faith and piety to God the Almighty and increase their morality in order to improve the intellectual capacity of the whole nation;
3. A national education system should enhance its performance in the framework of even distribution of education opportunities, quality improvement, relevance and efficiency in education management to meet various challenges in the wake of changes of local, national and global lives; therefore it requires a well-planned, well directed, and sustainable education reform;
4. Law No. 2 Year 1989 regarding the National Education System is no longer appropriate and it needs to be changed and adjusted to the principles of the democratization of education;
5. In the light of the issues pointed out of a, b, c, therefore, it is necessary that the Law of National Education be enacted.

Regulations of Higher Education are mainly discussed in part four of the act.

Article 19

- (1) Higher Education is level of education after secondary education including diploma, undergraduate education, postgraduate education (Master and Doctoral), and specialized education organized by a tertiary education institution.
- (2) Higher Education shall be provided in an open system.

Article 20

- (1) Higher Education institutions can take the form of academy, polytechnic, higher education, institute, or university.
- (2) Higher Education institutions have to provide education, research, and community services.
- (3) Higher Education institutions can run academic, professional, and/or applied science programs.
- (4) The implementation of higher Education institutions set forth in verse (1), verse (2), and verse (3) shall be further stipulated by government regulation.

Article 21

- (1) Higher Education institutions that have met the requirements of establishment and are declared to have the rights to provide a particular academic program can confer academic, professional, or degrees in accordance with the education programs that are provided.
- (2) Individual, institution, or education provider that is not a Higher Education
- (3) Institution is prohibited from conferring academic, professional, or applied science degrees.  
Academic, professional, or applied science degrees are only used by

graduates of higher institutions who are declared to have the right to possess the related degrees.

- (4) The use of academic, professional, or applied science degrees of higher Education institutions is only acceptable in the form and abbreviation received from the related institutions.
- (5) Education providers that do not meet the requirements of establishment set forth in verse (1) or education providers that are not higher institutions who take action set forth in verse (2) shall be given administrative sanction in the form of termination of the provision of education.
- (6) Academic, professional, or applied science degrees conferred by education providers that do not meet the requirements of establishment set forth in verse (1) or education providers that are not higher education institutions set forth in verse (2) will be declared illegal.
- (7) The implementation of conferring academic degrees set forth in verse (1), verse (2), verse (3), verse (4), verse (5), and verse (6) shall be further stipulated by government regulation.

#### Article 22

Universities, institutes, and higher education which have doctorate programs are entitled to confer a suitable degree of honorary doctor (Doctor Honoris Causa) on an individual who deserves a high appreciation with regard to his/her extraordinary contribution to science, technology, community, religion, culture, or arts.

#### Article 23

- (1) In a university, institute, and higher education a professor can be appointed in accordance with the regulations which are in effect.
- (2) The title of professor is only used for the period when the holder is in the designated functional position at a higher education institution.

#### Article 24

- (1) In the implementation of education and development of science, a higher institution is entitled to academic freedom and academic forum freedom, and scientific autonomy.
- (2) Higher Education institutions are entitled to autonomy to manage their institutions as a center of higher education, scientific research, and services to the community.
- (3) Higher Education institutions are entitled to raise funds from the community and the management is based on the principles of public accountability.
- (4) The implementation of the provisions set forth in verse (1), verse (2), and verse (3) shall be further stipulated by government regulation.

#### Article 25

- (1) Every education provider is entitled to set requirement for conferring academic, professional, or applied science degrees.
- (2) A graduate's right to hold an academic, professional, or applied science degree shall be removed if his/her thesis/dissertation is a plagiarism.
- (3) The implementation of requirements to hold and to revoke a degree set forth in verse (1) and verse (2) shall be further stipulated by government regulation.

### **1.4 Brief History, Vision, Mission and Strategic Goals of Hasanuddin University (Unhas)**

#### **a. Brief History**

Before the official founding of Hasanuddin University, more popularly abbreviated as **UNHAS**, several academic departments (referred to as faculties in Indonesia) had already been established in Makassar. The first was Faculty of Economics which was begun in 1947. It was followed by

Faculty of Law and Community Studies established in 1952, and Faculty of Medicine in 1955. These three faculties were affiliated with the University of Indonesia located in Jakarta.

Although these three faculties were able to partially accommodate the community's desire for tertiary education opportunities in the region, the effort to establish an independent State University continued to be pushed forward by community figures in this region. This strong desire finally had its fulfillment when the plan to establish a new university was approved by the Minister of Education and Culture of the Republic of Indonesia in his decree No. 3369/S of July 11, 1956. The decree was implemented by Government Regulation No. 23 of September 8, 1956, which was published in State Bulletin No. 39 of 1956. These documents referred to the establishment of a university in Makassar named "UNIVERSITAS HASANUDDIN (UNHAS)".

The name "Hasanuddin" was taken from the name of the 16<sup>th</sup> king of Gowa (the kingdom of Gowa Makassar) who fought against the Dutch colonial government in the 17th century. The full name of his majesty was *I Mallombasi Daeng Mattawang Karaengta Bonto Mangape Sultan Hasanuddin*. Unhas was officially inaugurated by the first Vice-President of the Republic of Indonesia, Drs. Moh. Hatta, on the 10th of September, 1956.

On the day of its birth Unhas had 4 faculties, the three which had been affiliated with the University of Indonesia plus a Teacher Training and Education faculty located in Tondano, North Sulawesi. The student body numbered only 862, and they were taught by staff of 80 under the leadership of the first rector Prof. Mr. Pringgodigdo, who was also Rector of the University of Airlangga in Surabaya.

Between 1960 and 1964 six other faculties were added to the four existing ones. Those six faculties were the Faculty of Engineering which was opened on September 8, 1960; the Faculty of Letters on November 11,

1960; the Faculty of Social and Political Sciences on February 1, 1961; the Faculty of Agriculture on August 17, 1962; the Faculty of Mathematics and Natural Sciences on August 17, 1963; and the Faculty of Animal Husbandry on May 4, 1964. In that same year (1964), the Faculty of Teacher Training and Education was separated from Unhas and became an independent institution, the Institute of Teacher Training and Education.

The growth of the *city* left very limited space for development at the site of the original Baraya campus. Therefore, in 1974 the members of the university senate decided that a new campus should be built.

The master plan of the new campus was designed by Paddock Inc. of Massachusetts (USA) and construction was begun by OD 205 Holland in cooperation with Sangkuriang Ltd. Bandung. The foundation stone for the new campus was laid by the Minister of Education and Culture of the Republic of Indonesia, Prof. Dr. Syarif Thayeb on June 15, 1974. Then, on the occasion of the 25th anniversary celebration of Unhas, September 17, 1981, the President of the Republic of Indonesia, Soeharto, officially inaugurated the new campus. The new campus location is called "*Tamalanrea*" which in the Makassar language means "*never becoming bored*":

The 220 hectare campus is situated 10 kms from the city center, and 7 meters above sea level. The buildings are interconnected and stretch from the central administration buildings to other buildings on the campus. The central library can be reached in less than a fifteen minute walk from the furthest buildings on the campus. The interconnected system allows a person to walk from one building to another without being exposed to the elements.

Within two years after the new campus was opened, two additional faculties increased the number of faculties to be eleven. The two faculties were the Faculty of Dentistry on January 23, 1969 and the Faculty of Public Health which was opened on November 5, 1982. Another faculty, Marine Science and Fisheries was opened thirteen years later on January 29, 1996.

## **b. Vision, Mission and Strategic Goals**

Based on the national strategy, the Vision of UNHAS is “Center for development of maritime culture” (*Pusat Pengembangan Budaya Bahari*).

This vision links UNHAS directly to the regional development of Provincial Government of South Sulawesi, which through this vision UNHAS can develop the revitalization and actualization of this region.

Based on this vision, the missions of UNHAS are as follow:

- To produce graduates who are academically and professionally competent, whose insight and orientation are attuned to the future, and who are able to contribute well to their dynamic working environments.
- To continually guard and promote the roles of science, technology and arts in improving the sustainable quality of human welfare by advising and developing community institutions so they can utilize science and technology efficiently and effectively.
- To actively prevent and reduce poverty, underdevelopment, and gaps between regions and social strata by utilizing science and technology in order to achieve a much fairer and more equitable spread of development.

This mission is transformed into the following 7 strategic goals:

- (a) UNHAS will act as a center for preservation and development of science, technology and culture.
- (b) Produce a qualified academic community supported by scientific culture, which holds the truth and reality in high esteem, and open, critical, creative, innovative, and as well as sensitive towards the dynamics of regional, national, and global changes.



- (c) Develop and utilize sciences, technology, and arts which are relevant to the aims of national and regional development through study programs offered, research, institutional development, and development of academic human resources.
- (d) Develop UNHAS as a research university.
- (e) Improve the quality of facilities, equipment and technology, and to develop an academic atmosphere which is profitable to society and supports the attainment of the university's mission.
- (f) Improve productivity and quality of the UNHAS output, especially in relation to the development needs and the development of the private sector.
- (g) Develop the cooperation with external sectors like government agencies, business and industry, universities and other technology agencies both in the country and abroad.

All these programs and plans consider among others the environmental setting of UNHAS, which are:

- (1) The shifting knowledge paradigm from deterministic-reductionism towards synergetic-holistic, demand all elements in the teaching institution to modify the basic format of higher education teaching and learning process;
- (2) The development of science, technology and art has shifted the resource based economy to knowledge based economy, hence making the advance of technology itself become very rapid
- (3) Globalization as the impact of science and technology development has changed the traditional education of class based (room and time dimension) towards borderless education format. This format can be in the form of distance learning that utilize information and communication technology;

- (4) The shifting of people's aspiration towards education as a result of democratization and transparency in all aspects of human life including human right, justice and gender.
- (5) Interest and learning needs of the community towards higher education is increasing
- (6) The increasing role of regional development and local autonomy demand more qualified human resources

There are some strategic issues faced by the university and these issues must meet the environmental and instrumental input given to UNHAS. The strategic issues among others are:

- The quality improvement of the role of UNHAS.
- The transformation of the teaching methods and teaching material.
- Shifting the traditional role of the higher education from education for all versus cooperative education.
- Development of on-line teaching method besides traditional on-campus teaching.
- Improve the self organizing capacity of UNHAS.

All these factors will be integrated into UNHAS strategic plan to become a top national university, hence UNHAS has the following characteristics:

- UNHAS has a top quality education system.
- UNHAS has research and public service programs facilitating the development of the community culture, as a realization of UNHAS to become a "communiversity" which provide life long, life wide and life deep learning.
- UNHAS has an effective management system with a characteristic of a learning organization with an adaptability to wards its dynamic environmental.

- UNHAS campus is a community friendly campus and also a campus friendly community supported by a well develop campus infrastructure.

The vision and mission of UNHAS is clearly related to the future development plan of the Faculty of Engineering which will be elaborated in the last part of this strategic plan.

### **I.5 Faculties, Departments, Staffs and Students of UNHAS**

Hasanuddin University is one of state university among 45 state universities in Indonesia. This is the largest university in eastern Indonesia with 1862 academic staffs (23 % hold Ph D degree and 56 % Master degree and 21 % of Strata 1) and 1252 supporting staffs who serve about 30,492 students spread over in 12 faculties.

During the past 49 years Unhas has grown from 4 to 12 faculties, becoming a full fledged university offering 98 bachelors programs, 28 masters programs, and 8 Doctoral Degree programs, as well as 14 non degree undergraduate diploma programs. Unhas, at present, has 1862 teaching staff, 919 administrative staff, and 30,492 students (based on 2005 data).

### **I.6 Objectives Will Be Achieved in 2006-2010**

#### **a. University Objectives and Priorities**

The long-term vision of this university is to strengthen sciences, technology and arts to amplify the quality of human welfare. Based on this vision it is set out the following mission:

- To produce graduates who are academically and professionally competent, whose insight and orientation are attuned to the future, and who are able to contribute well to their dynamic working environments.

- To continually guard and promote the roles of science, technology and arts in improving the sustainable quality of human welfare by advising and developing community institutions so they can utilize science and technology efficiently and effectively.
- To actively prevent and reduce poverty, underdevelopment, and gaps between regions and social strata by utilizing science and technology in order to achieve a much fairer and more equitable spread of development.

The above missions are done through improving the ability of staffs to conduct teaching, research and communities service activities. To achieve the aims of the missions for the period of 1997 to 2006, Unhas has set up main strategic programs called RENSTRA as follows:

- Improve new student recruitment system
- Improve teaching and learning process
- Improve management system
- Improve research and community services

With these improvements the graduate quality will certainly increase.

#### **b. Improvement of new student recruitment system**

The recruitment of new students at Unhas is carried out through two systems.

- The first system is to accept new students from those who pass qualification test called UMPTN (State University Entrance Test) conducting in last June or in the first of July every year. In 2000 was accepted 3261 new students from 44,929 applicants who took this test. The average UMPTN score of these new students was relatively low (581 for social science and 559 for exact science), this score was in the 21-st rank for social science and 25-th for exact science among 45 state universities' scores in Indonesia.

- The second system is to invite the Top 10 rank of high school graduates called JPPB system from reputable SMU (Senior High School) located in the eastern part of Indonesia to become new students. During the last five years, about 12 % of all new student has been accepted every year through this system.

Two efforts are proposed to overcome the above phenomenon: 1) to increase the availability of financial aids for students with high GPA scores, 2) to increase the percentage of the students accepted through JPPB system by expanding the area of SMU.

### **c. Improve teaching and learning process**

Unhas truly realizes that teaching and learning process has to be improved continually. The improvement should include the improvements of the staffs' quality, the quantity and quality of facilities, the relevance of the curriculum, and the academic atmosphere.

- To improve the teaching capacity, all staffs are prepared through a teaching methodology training called AKTA-V or PEKERTI. So far, about 78% among all staffs have had this kind of training.
- Every study program has been equipped with laboratories and other supporting facilities. The quality and quantity of these facilities, however, are insufficient. To overcome this condition, the Unhas puts significant efforts to seek opportunities in improving these facilities.
- In order to maintain the relevance of the graduates' quality with the needs of the job market, Unhas always encourages the study programs to regularly review and improve their curricula. The improvement includes:
  - Improve the English proficiency of the students, TOEFL score of at least 450,
  - Improve students' ability in applying computer in their related fields, and

- All students must be loaded with Entrepreneurship courses.
- To make the academic atmosphere healthier, The Unhas has tried to improve the staff commitments, quality of the students, and quality of facilities.

#### **d. Improve management system**

The management system is continuously improved through the improvement of database, budget allocation, information system, and staff recruitment system.

- Database will change from a conventional system to a computer-base that can be integrated into a management information system.
- Budget allocation has been changed to a decentralized system in which study programs manage their own funds.
- Information system will be developed such that available information can be easily accessed through a computer network.

#### **e. Improve research and community services**

During the last five years there has been a great improvement in research activities. Research activities include RUT, *Hibah Bersaing*, URGE, Toray Foundation, and some other Collaborative Research. In term of these research activities, Unhas has become a leading university among all universities in the eastern Indonesia.

To enhance research capabilities, the following efforts are conducted:

- To increase the number of staffs with Ph.D degrees
- To regularly conduct workshop on research methodology
- To expand collaboration on research, with private and government institutions through network.

At the same period, it has been done a number of community services facilitated through Voucher, IPTEKS (applied technology), and entrepreneurship programs funded by Directorate of Higher Education. Other services conducted are KUT (credit for paddy crop) programs supervision, management training for small-scale industries.

## PART II

### OVERVIEW OF FACULTY OF ENGINEERING

#### 2.1. General

At present, Engineering Faculty which consists of six departments namely: Civil, Mechanical, Naval, Electrical, Architecture and Geology has approximately 10,885 alumni of S1 and 4,110 alumni of Diploma III. Most of the alumni are spread in all parts of Indonesia and several in overseas. Graduates develop their profession as BUMN staffs, lecturers, official government, private employees, entrepreneurs and researchers.

The number of students which enrolled in faculty of engineering at present are approximately 7000 students ( 4,148 students in regular studies and approximately 3000 students in non regular bases), and the students came from all parts of Indonesia. The recruitment of new students is carried out by qualification test called SPMB (State University Entrance Test).

The number of student candidate who want to enter Hasanuddin University increases every year. In fulfilling the demand of human resource development in correlation to the local and regional development, especially in Eastern Indonesia as one of the national commitment, Hasanuddin University is expected to accommodate students more than its carrying capacity. Hasanuddin University was originally designed to accommodate 18,000 students, while currently it is crowded by more than 30,000 students.

Faculty of Engineering as one of the faculties in Hasanuddin University has the vision of ***“As the main core of education, research, application and development of science and engineering technology, based on maritime culture and universal point of view”***

Faculty of Engineering has mission as follows :

1. To produce graduates who are academically and professionally competent, whose insight and orientation are attuned to the future,



and who are able to contribute well to their dynamic working environments.

2. To continually guard and promote the roles of science, technology and arts in improving the sustainable quality of human welfare by advising and developing community institutions so they can utilize science and technology efficiently and effectively.
3. To actively prevent and reduce poverty, underdevelopment, and gaps between regions and social strata by utilizing science and technology in order to achieve a much fairer and more equitable spread of development.

Engineering Faculty must accommodate students over than its ideal capacity from other areas in the region that only have a few engineering educational institutions. Furthermore, the teaching/learning and research facilities are very low. This condition can not be maintained otherwise it will deteriorate the output quality of Engineering Faculty. Faculty of Engineering as one of faculties in Hasanuddin University has the same problems. Due to that condition, problems of Faculty of Engineering could be identified as follows:

- (1) Insufficient lecture room
- (2) Lack of integrated laboratory
- (3) Decreasing of the output quality
- (4) Ratio between staff and student is still low
- (5) Lack of research competence and scientific publication
- (6) Insufficient facilities or advanced research facilities.
- (7) Insufficient number of text book and international journal
- (8) The curriculum is not enough in line with rapid development of science and technology
- (9) There is very few international linkage or join research

Based on the problems identified, the demand for the development could be divided into infrastructure, teaching staff and research facilities.

This become necessary by considering the status and role of the Faculty of Engineering as an integral part of national education system that should grow and develop as any other engineering faculties in Indonesia that can compete with national as well as international institution. Faculty of engineering has responsibility in improving the quality of human resources to support the regional and national development. Faculty of engineering as a faculty of the biggest university in the eastern part of Indonesia, the faculty of Engineering has to provide national education and act as a national instrument for providing opportunities for the best citizens in pursuing their career in the field of engineering professions. Faculty of engineering is open to any student from any part of the Indonesian territory. As the role of university are quite enormous and plays in very important change to developing Indonesian nation.

## **2.2. Educational Process And Staff**

Educational process in The Faculty of Engineering is based on the competency-based-curriculum and a teaching road map conducted all this time. Academic quality management system is implemented to reach the educational objectives. The teaching equipments commonly available are black and white board, and OHP.

The educational process is supported by 302 academic staffs. The staffs who hold S3 degree are 36(12%), 177 (59%) hold S2 degree, while 75 (29%) hold only S1 degree. The total S2 and S3 holder is 71 %, higher than the national target at the end of Repelita VI (50%).

If it is grouped according to academic rank, only 15 (5%) of the staffs are Professor, 89 (30,%) Lektor Kepala, 80 (26%) Lektor, and 117 (39%) asisten ahli. Table 2.5 shows the distribution of staffs according to degree, academic rank and rank.

**Table 2.1** Distribution of academic staff according to degree and rank

No	Description	Department						Total
		Civil	Mch	Naval	Elec.	Arh.	Geo.	
1	<u>Degree</u>							
	1. S1	17	17	12	18	21	10	95
	2. S2	40	25	28	30	31	17	171
	3. S3	6	11	3	6	7	3	36
	<b>Total</b>	63	53	43	54	59	30	302
2	<u>Fungsional rank</u>							
	Asisten Ahli	28	16	22	21	17	13	117
	Lektor	17	11	8	18	19	7	80
	Lektor Kepala	16	19	12	12	20	10	89
	Guru Besar	2	7	1	3	3	-	15
	<b>Total</b>	63	53	43	54	59	30	302

Administrative staff with PNS status is 84, 25 (30%) of them hold S1 (sarjana), 10 (12%) hold D3 (sarjana muda), 44 (52%) hold SMU / SMK, while the rest hold SD and SMP (see Table 2.2).

**Table 2.2.** Distribution of staffs according to age and education

Age (years)	SD & SMP	SLTA	D3	S-1	Total
< 31	-	2	1	-	3
31 – 40	2	6	2	9	19
41 – 50	2	32	6	15	65
> 51	1	4	1	1	7
<b>Total</b>	5	44	10	26	84

### 2.3. Students

The number of students which enrolled in faculty of engineering at present are approximately 4000 students, and came from all parts of

Indonesia. The recruitment of new students is carried out by qualification test called SPMB. The average ratio between lecturer and students is about 1: 14 which below than the national standard of 1:10.

**Table 2.3** The Total Number of Students (Faculty of Engineering, Hasanuddin University) in the last 4 (four) year.

Department	2001/2002	2002/2003	2003/2004*	2004/2005*
Civil	1.119	1.039	910	831
Mechanical	1.376	1.230	1.061	930
Naval	732	773	687	651
Electrical	1.172	1.193	792	667
Architecture	778	879	680	708
Geology	351	351	345	361
Total	5.528	5.465	4.475	4.148

*For S1(Under Graduate) Regular and D3 (Diploma) Regular*

*\*) No incoming students for D3*

## **2.4. Management And Organization**

Engineering faculty is directed by a dean with three vice dean. The first vice dean is responsible to the academics, second dean is responsible to the financing, and third dean is responsible to the students activities. Detail about the organization chart of engineering faculty is shown at the attachment.

## **2.5. Academic And Supporting Programs**

The academic and supporting programs are conducted between Hasanuddin University and other national and international universities to increase the human resources of the Hasanuddin University. Such as student exchange between Hasanuddin University and international students, short term program of improving lecturers capabilities.

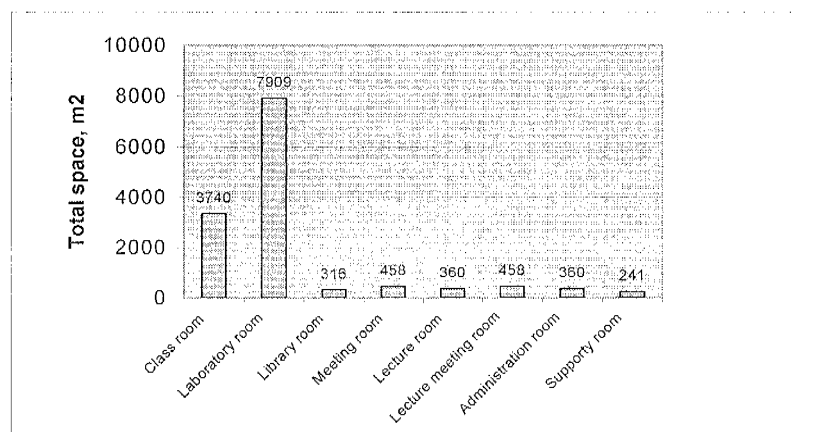
Beside that, some supporting programs are also conducted such as basic study skill, joint academic programs between faculty of engineering and some institution in regional and national area. Besides that some memory of understanding (MoU) have been signed between The Faculty of Engineering and some institutions or companies.

## 2.6 Physical Facilities

The infrastructure of engineering faculty is insufficient to support normal academic process due to the lack of buildings and rooms. In order to optimally run the education process, it is important to build more integrated classrooms at the new location.

In general, the infrastructure owned by the Engineering Faculty could be categorized in three groups, namely academic building, administrative building, and supporting building. The academic building consists of lecture rooms, laboratories/studio, libraries, and lecture rooms. The administrative building consists of faculty/department leaders' rooms and administrative staffs rooms. The supporting building includes meeting room, visitor room, praying room, toilet and kitchen.

The total room space in 2005 is approximately 14,081 m<sup>2</sup>. Figure 2.1 shows that most of the available room is used for laboratories, namely 7,909 m<sup>2</sup>.

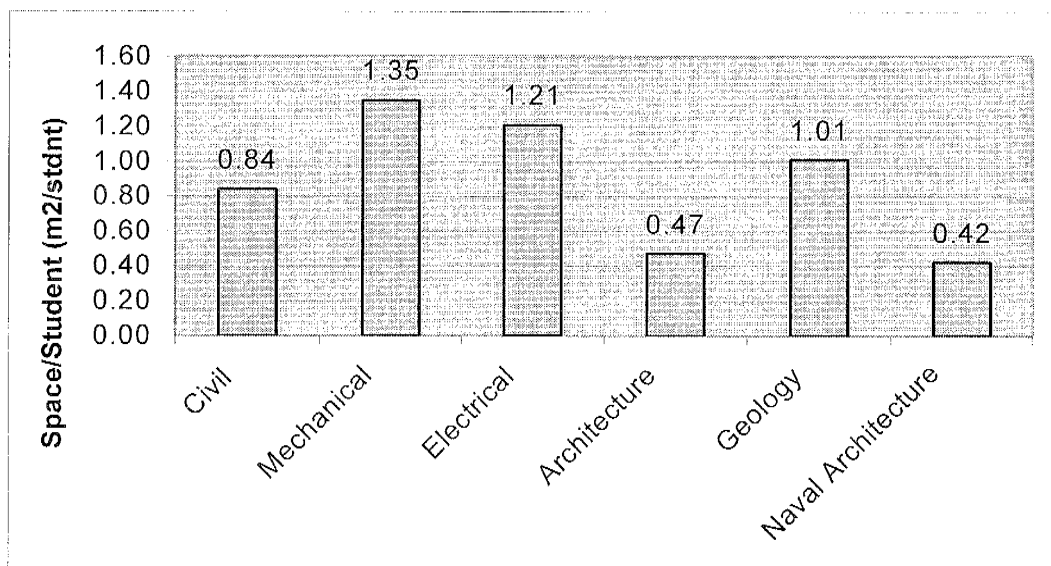


**Figure 2.1 Distribution of room utilization in 2005**

**a. Lectures Rooms**

The total classrooms owned by the Faculty are 3740 m<sup>2</sup>. In the beginning, the lectures rooms are centralized at the university level, but the concept did not work properly. Because of that, several laboratories/studios were then used as lecture rooms. Comparing to the number of student, the lecture rooms are insufficient.

The total classrooms owned by the Faculty are distributed into six department. Some of departments have less sufficient classroom. Ratio between available space and a student for each department is between 0,26 s/d 0,97 m<sup>2</sup>/students. Based on the data, and compared with the Minister of Education Degree (Kepmendiknas) No. 234/U/2000, which states that the minimum required space for each student is 0.50 m<sup>2</sup>, the Architecture and Naval Architecture do not meet the criteria. This condition resulting a problem in implementation of effective learning-teaching process.



**Figure 2.2 Ratio of the lecture rooms to number of student**

**Table 2.4 Ratio between lecture room space and student**

No	Department	Total lecture rooms space (m <sup>2</sup> )	No. of student	Ratio space/student
1	Civil	702	831	0,84
2	Machine	1.258	930	1,35
3	Naval	275	651	0,42
4	Architecture	809	667	1,21
5	Electrical	332	708	0,47
6	Architecture Geology	364	361	1,01
	<b>TOTAL</b>	<b>3.340</b>	<b>4.148</b>	<b>0,88</b>

**b. Laboratories**

The Engineering Faculty has 58 laboratories, as shown in the Table 2.5. All laboratories have insufficient facility even to do basic experiment. Due this condition, it is very difficult to compete in research even in regional level. At this moment its feels inappropriate in order to improve practical skill of student.

**Table 2.5 Ratio between laboratories space and student**

No.	Department	No. of Lab	Space (M <sup>2</sup> )	No. of students	Ratio M <sup>2</sup> /std.
1	Civil	7	1.785	831	2,15
2	Machine	11	2.160	930	2,32
3	Naval Architecture	7	1.037	651	1,59
4	Electrical	12	1.599	667	2,40
5	Architecture	9	382	708	0,54
6	Geology	12	946	361	2,62
	<b>TOTAL</b>	<b>58</b>	<b>7.909</b>	<b>4148</b>	<b>1,94</b>

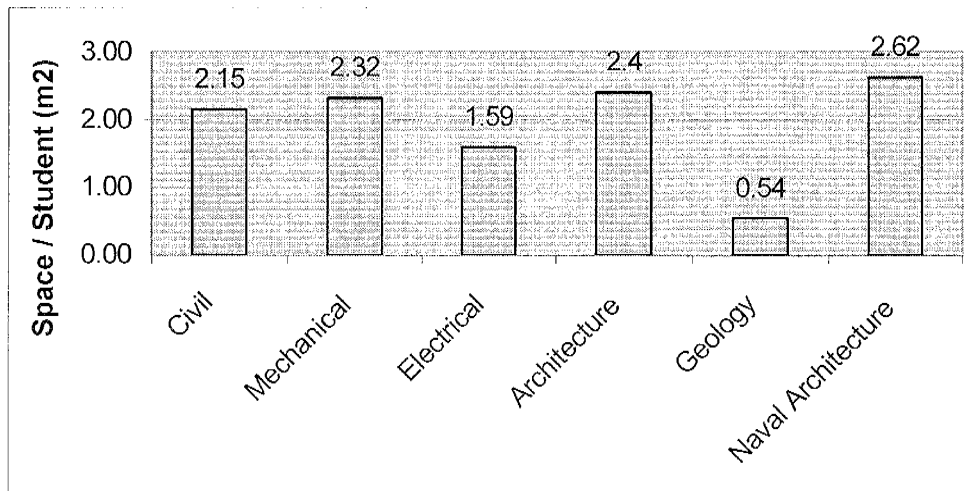


Figure 2.3 Ratio of the laboratory space to Student

The ratio between the laboratories space and student is between 0,54-2,62 m<sup>2</sup>/student as shown in Figure 2.3. With the ratio, only Geology Department could meet the minimum criteria set forth by Mendiknas, namely 2.5 m<sup>2</sup>/students.

### c. Lecturer Room

The total available space for lecturers seems very inadequate, namely between 0.46-2.43 m<sup>2</sup>/staff, as shown in Figure 2.4. The ratio is very low compared to SK Mendiknas, namely 4 m<sup>2</sup>/staff.

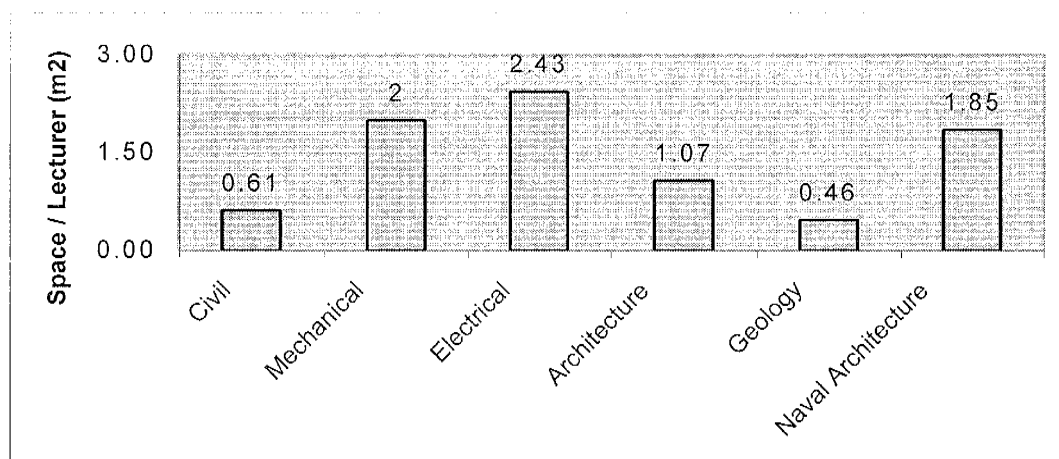


Figure 2.4 Ratio of the lecturer rooms to academic staffs



**Table 2.6 Ratio lecturer room/staff**

No.	Department	Total lecturer	Total lecturer room (m <sup>2</sup> )	Ratio (m <sup>2</sup> /person)
1	Civil	59	36	0,61
2	Machine	48	96	2,00
3	Naval Architecture	39	72	1,85
4	Electrical	46	112	2,43
5	Architecture	56	60	1,07
6	Geology	26	12	0,46
	<b>TOTAL</b>	<b>274</b>	<b>388</b>	<b>1,42</b>

**d. Administrative Room**

The administrative room available at the Engineering Faculty is varied from one to other department. According to SK Mendiknas, the minimum required space is 4 m<sup>2</sup>/staff. At the Electrical Engineering and Architecture, the available space is less than the requirement. The administrative rooms are insufficient to support the academic process effectively.

**Table 2.7 Ratio of Administrative Room**

No.	Department	No. of adm staff	Total adm. Staff (m2)	Ratio (m <sup>2</sup> /staff)
1	Civil	5	46	9,2
2	Machine	5	39	7,8
3	Naval	5	40	8
4	Electrical	6	20	3,33
5	Architecture	4	15	3,75
6	Geology	3	12	4
7	Civil	39	400	10
	<b>TOTAL</b>	<b>67</b>	<b>573</b>	<b>8,5</b>

## 2.7. Curriculum

The curriculum of each department is a competency based curriculum. The curriculum is designed to produce human resource with a high competency. In general, subjects in the curriculum are divided into 5 groups. The groups are: Personality Development Subjects (Mata kuliah pengembangan kepribadian (MPK), Knowledge and Skills Subjects (mata kuliah ilmu dan keterampilan (MKK), Creativity Skills Subjects, mata kuliah keahlian berkarya (MKB), Creativity and Attitude Subjects, mata kuliah perilaku berkarya (MPB) and Common Peer Subjects, mata kuliah berkehidupan bersama (MBB).

MPK subjects are expected to give personal development foundation in line with the vision of national and international perspective. MKK subjects are expected to give basic expertise in analyzing and data processing to support the knowledge and skills of being creative. MKB subjects are expected to give competency in technical matters. MPB subjects are expected to give managerial competency in creating and implementing such engineering product. MBB subjects are expected to give competency cooperating within a working team. Number of credits of each department is shown in table 2.8. Total credits of department in faculty of engineering range between 145 to 149 credits.

**Table 2.8 Number of credits**

No.	Department	Number of Credits
1	Civil	148
2	Mechanical	149
3	Perkapalan	146
4	Electro	147
5	Architecture	146
6	Geology	145

## **2.8. Funding History**

The first technical assistance for the development of the Eastern islands Universities was focused on University of Hasanuddin (UNHAS). This technical assistance originated from the USAID (USA) and was implemented by the Washington University, USA. Through this assistance UNHAS staff undergo formal studies leading to S2/S3 degrees at various USA Universities.

Technical assistance was also provided for the institutional development of UNHAS. This technical assistance was followed by an DB-LOAN, which focus on the Campus Development, equipment supplies and further staff development (leading to S2/S3 degrees) beside technical assistance for the institutional development of UNHAS.

It was this sequence of development at UNHAS, that caused the CIDA-CANADA assistance which stated in 1989, to choose UNHAS to act as a resource university beside IPB, ITB, UGM and UI.

Other than mentioned above, under the frame of DGHE, some departments have managed to obtain funding supports such as TPSDP, Semi Que, DUE Like, SP4 and A2. These funding frames were given through national competition.

## **2.9. Graduates Gpa And Length Of Study**

The average GPA of student in engineering faculty increases year by year as shown in Figure 2.6. The average GPA for academic year of 2004/2005 was 3.04. Average of the length of study of S1 degree is 5.2 years. Engineering Faculty has approximately 10,885 alumni of S1 and 4,110 alumni of Diploma 3. Most of the alumni spread in all part of Indonesia and several in the overseas. Graduates develop their profession as researcher, lecturer, official government, BUMN, private and entrepreneur.

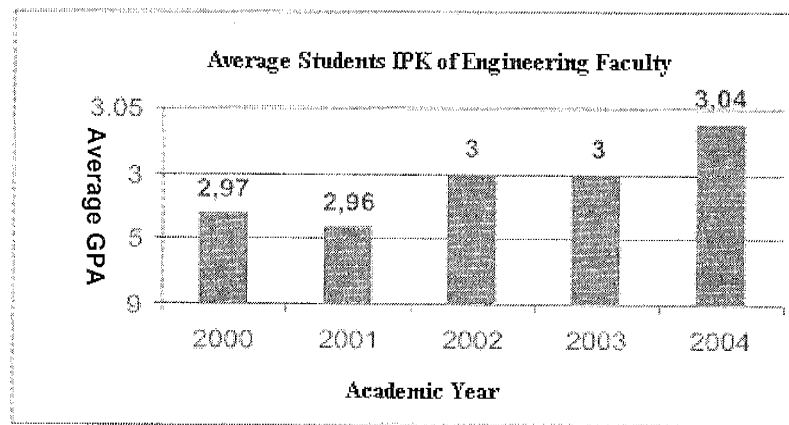


Figure 2.5 Average Students GPA of Faculty Engineering students

## 参考資料

学科別協議結果



学科別協議結果

1 土木学科

(1) Basic Issue for Education

Issue	Situation(Feature)	Advice ○コメント ●課題	Collecting Data
1.Course Program ①Number of course program ②Contents of course program ③Evaluation for course as a whole (授業の評価) ④Evaluation of teaching or supporting staff (教員の評価)	2 (two) study programs (SP) 1. Civil (Under graduate) 2. Civil (Graduate) - Structure - Water Engineering - Geotechnical - Transportation - Infrastructure Evaluation be done by National Accreditation Board rules. Civil (under graduate) holds A level (2006~2010).and Civil (graduate) holds C level (2008~2012). Evaluation will be done by students using questionnaire	●環境・防災それから地域計画・都市計画分野の強化・充実が望まれる ○国のアクレディテーションボードによる評価は学部はAレベルであったが、大学院はCレベルであり、改善が必要である。 ○学期期間中に1回学生評価アンケートを実施しており、各教員にフィードバックしている	Accreditation Board Questionnaire sheet
2 .Curriculum ①Contents of	Enclosed	●開発や工業化により環境問題は深刻であ	

	curriculum(具体的な内容を確認しつつ課題を整理)		り、環境分野の強化は不可欠である。また今後地球温暖化が熱帯地方に与える影響を予測し、適応するために防災分野の充実が望まれる。また今後インドネシアは益々開発されていくと思うが、秩序ある開発のためにも地域計画・都市計画分野の強化・充実が必要である。	
	② Timetable of each semester and number of classes in each term(時間割)	Enclosed		
3. Syllabus (具体的な内容を確認しつつ課題を整理)	Enclosed			
4. Resource allocation of each department	① Assignment of teaching staff to each study program (授業プログラムの教員の割り振り) ② Allocation of experimental laboratory(実験室の割り振り) ③ Number of Subjects allocated to each staff	Each lecturer gets an assignment letter from the Dean of FE regarding one semester lecturing, based on the lecturer meeting. The lecturing load of each lecture averagely 12 credit units/ semester, including education (5~7 CU), research and public services. -12/151 credit units are experimental (under graduate) - 8/48 credit units are experimental (graduate) Average 3 subjects/lecture. Each subject be conducted by team lecturers.	○ 教員のミーティングに基づく割り振りを、アサインメントレターにより教員に渡している。授業プログラムの大きな変更は5年毎に実施している。 ○ 2つのコースとも実験演習にかける割合は高くはない。もう少し実験演習の比率を高めても良いと思われる。 ○ 教員間の偏りは大きなものではない。	Curriculum (*2) Decree of Lecturing



	(科目時間数の割り振り)			Schedule
--	--------------	--	--	----------

(2) Action Plan for Improvement of Education and Research system(Idea)

(PDM(案)の活動項目に基づき、学科活動計画(案・4 半期毎)を作成する。短期専門家派遣は主に 3、9 月が中心のため専門家不在時期も勘案のこと。項目の適宜追加、変更をお願いします) →

Issue(Education)	1 <sup>st</sup> Year			2 <sup>nd</sup> Year			3 <sup>rd</sup> Year		
	Start at 2010	Revision be done each 5 years	Present curriculum start from 2007						
To set a taskforce for revising curriculum and syllabus in each department									
To survey for social needs for the engineering field in eastern Indonesia									
Curriculum	① To grasp current situation								
	② To sort out the current syllabus into usable one and the one which requires revision								
	③ To revise(for freshman and sophomore)								
	④ To revise(for junior year and college senior)								
Syllabus	① To grasp current situation								
	② To sort out the current syllabus into usable one and the one which requires revision								



To set up laboratories according to the concept															
To introduce Lab-based education system															

(追加項目)

1) How to Introduce Lab-Based Education

(学科毎に具体的な Lab-Based Education の導入について体制[人員・予算]等、方法論について相談する。)

-How to introduce Lab-based education:

1. All academic staffs of the Department need to have the common perception regarding the Department's vision.

• Some senior lecturers talked about difficulty to have concrete imaginations on Lab-based education. Because most of them don't have experience in research work. They want to come to Japan for short time and see directly how to manage the Lab-based education in Japanese universities.

• Although many new experimental facilities and instruments are introduced into the department by this JICA-JBIC Project, most of senior lecturers are not familiar to what they are used for and how to operate them. It is necessary to make senior lecturers recognize functions and operations of experimental facilities somehow.

2. The Department needs to establish "research roadmap".

• As the beginning, group works including graduate students and undergraduate are suggested to start not only for research work but also for expanding their expert knowledge on up-to-date researches.

• To get funds for research work, it is necessary to look into the possibility that JICA or JBIC can support UNHAS with financial aids and that Japanese universities work in cooperation with. Although there is a way to proceed research work by using numerical simulations without any money, even in this situation the bare necessities of research like personal computers are required.

• All staff returning back from Japan (both of long-term/s3 and short-term/research programs) should share knowledge and experience regarding Japanese-style LBE to other staff of the Department by means of workshops and short-term training, and develop Unhas-style LBE considering the Unhas situation.

2) Field of the JICA Experts(プロジェクト開始後の JICA 専門家の派遣に当たり、どの分野に重点を置くのか確認)

Transportation Planning, Water Engineering (Disaster Prevention), Environmental Engineering and Geotechnical (Landslide)交通計画、水防災、環境工学、土

砂防災
-----

(3) Fellowship program (Research program for 6 months)

No	Issue	Idea of each candidate	Advice
1	Purpose and Goal of the program (個人の能力向上のみならず、研修成果が大学、地域に還元されることを意識付ける)	Candidate: Professor Dr. Ir Lawalenna Samang	<ul style="list-style-type: none"> <li>50歳ということで意欲が若干心配されるが、受け入れ先の佐賀大学林教授がしっかり取り組むと言われている。</li> </ul>
2	Action Plan for 6 months (研究能力向上・教育能力向上のバランスを図る、Action Plan は候補者が作成)		<ul style="list-style-type: none"> <li>最初のバッチは重要であるので、日本での十分なケアが望まれる。</li> </ul>
3	Suitable university and faculty in Japan for each candidate	Prof. Shigenori HAYASHI Saga University	<ul style="list-style-type: none"> <li>本人は受け入れ側との連絡は取っている。</li> </ul>

(4) Equipment List

No	Issue	Situation (Feature)	Advice	Collecting Data
1	Equipment List (現有機材(教育用・研究用)のリスト化を指示、また、学科内の現有機材を直接確認)		<ul style="list-style-type: none"> <li>○ コンサルタントに提出済みである</li> <li>● 古い機材が多く、あまり活用されていないようである。早期更新が待たれる。</li> </ul>	
2	Equipment list for new campus (最新機材リストを確認し、重大な問題があれば協議)		<ul style="list-style-type: none"> <li>○ 機材は既に決定されているので、変更の余地はないが、十分活用されるかどうか若干心配である。</li> </ul>	

(5) 調査全体を通じた所感(日本語のみ)

1) 学科との会議を通じた全体所感(その他内容も含む)

・予想よりも土木教員の意識は高いものだったが、40代の教員が今後の学位の取得が困難なこと、研究機材の扱い方を知らないことなどから、絶望感を抱いている。

・カリキュラムにおいては、「環境・防災」、「地域計画・都市計画」等の分野の強化が今後望まれる。

・土木学科で大きなウエイトを占める40代教員に見られる絶望感については、日本の大学との共同研究や短期間の日本の大学の研究室視察などで意識改革を進めていく必要がある。この点について本プロジェクトでも対応を考えられないか。40代の教員の集団はあと20年間は大学に残るので本プロジェクトの成功のためには根本的対策が不可欠である。

2) 国内の大学との協力・連携の可能性(中・長期的な可能性も含む)

	内容	可能性
教育面	単位互換制度	
研究面	共同研究	

## 2 建築

### (1) Basic Issue for Education

Issue	Situation(Feature)	Advice	Collecting Data
1.Course Program	①Number of course program	○◎コメント ● 課題	Decree of establishment & Architecture Dept. Catalogue, (*1)
	2 (two) study programs (SP)	○ 建築都市の計画・建設の人材を送り出すためのプログラムとして標準的である。 ◎ 卒業設計に入る前に基本計画を検討するトレーニングを実施するなど、実務向けの教育を行っている。 ○ 2007年に改訂したばかりであり、次の改訂を2010年に予定している。	
	②Contents of course program	○ 同上	
	③Evaluation for course as a whole (授業の評価)	◎ 国のアクレディテーションボードによる評価は最高位のAレベルを得ており、継続的な努力が期待される。	Accreditation Board (*2)
	④Evaluation of teaching or supporting staff (教員の評価)	○ 学期期間中に1回学生評価アンケートを実施しており、各教員にフィードバックしている。	Questionnaire sheet (*3)
2 .Curriculum	①Contents of	● インドネシア地域をはじめとする熱帯地域	Dept of Architecture

	curriculum(具体的な内容を確認しつつ課題を整理)		の建築・都市デザインを目指しており、その目標に沿ったカリキュラムを構成するため、都市防災・都市計画、建築構造学の強化が望まれる。	Study Program (*4)
	② Timetable of each semester and number of classes in each term(時間割)	Enclosed	同上	Schedule (*4)
3. Syllabus (具体的な内容を確認しつつ課題を整理)		Enclosed	● 建築構造に関する科目はすでに開講しているが、都市防災に関する科目はまだであり、強化が課題である。	Dept of Architecture Study Program (*4)
4. Resource allocation of each department	① Assignment of teaching staff to each study program (授業プログラムの教員の割り振り)	Each lecturer gets an assignment letter from the Dean of FE regarding one semester lecturing, based on the lecturer meeting. The lecturing load of each lecture averagely 12 credit units/semester, including education (5~7 CU), research and public services.	○ 教員のミーティングにもとづく割り振りを、アサインメントレターにより教員に渡している。授業プログラムの大きな改変は5年毎に実施している。	Assignment letter (*5)
	② Allocation of experimental laboratory(実験室の割り振り)	63/150 credit units are experimental (architecture SP) 52/148 credit units are experimental (U&R SP)	◎ 2つのコースとも実験演習にかける割合は工学部の中でも高い。	Curriculum (*6)

	<p>③Number of Subjects allocated to each staff (科目 時間数の割り振り)</p>	<p>Average 3 subjects/lecture. Each subject be conducted by team lecturers.</p>	<p>○ 教員間の偏りはプログラムの改編によりある程度改善されており、特に大きな偏りはみられない。</p>	<p>Decree of Lecturing Schedule (*5)</p>
--	--	---	---	--

(2) Action Plan for Improvement of Education and Research system(Idea)

(PDM(案)の活動項目に基づき、学科活動計画(案・4 半期毎)を作成する。短期専門家派遣は主に 3、9 月が中心のため専門家不在時期も勘案のこと。項目の適宜追加、変更をお願いします) →

Issue(Education)	1 <sup>st</sup> Year			2 <sup>nd</sup> Year			3 <sup>rd</sup> Year		
	Start at 2010	Revision be done each 5 years	Present curriculum start from 2007						
To set a taskforce for revising curriculum and syllabus in each department									
To survey for social needs for the engineering field in eastern Indonesia									
Curriculum	① To grasp current situation								
	② To sort out the current syllabus into usable one and the one which requires revision								
	③ To revise(for freshman and sophomore)								
	④ To revise(for junior year and college senior)								
Syllabus	① To grasp current situation								
	② To sort out the current syllabus								



	into usable one and the one which requires revision																	
	③ To revise (for freshman and sophomore)																	
	④ To revise (for junior year and college senior)																	
Teaching material	① To sort out the current teaching material into usable one and the one which requires revision ② To revise (for each subject)																	
Introduction of education cycle	① To understand the idea of education cycle ② To implement the of education cycle																	
Lecture note	① To sort out the current lecture note into usable one and the one which requires revision ② To revise (for each subject)																	
Instruction Manuals	① To sort out the manual into usable one and the one which requires revision ② To revise (for each subject)																	

SOP: Standard Operational

SAP: Lecture Planning

Issue(Research/Introduction of Labo-based education)	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year
To understand the concept of Labo-based education system			
To set up laboratories according to the concept			
To introduce Labo-based education system			

(追加項目)

1) How to Introduce Lab-Based Education

(学科毎に具体的な Lab-Based Education の導入について体制【人員・予算】等、方法論について相談する。)

How to introduce Lab-based education:

1. All civitas academica of the Department need to equalize perception regarding the Department's vision, i.e. "marine culture" in tropical archipelagic viewpoint;
2. The Department needs to establish "research roadmap":
  - Long-term (20 years): developing the Department of Architecture as "centre of excellence" on marine and tropical culture, at least starting from Eastern Indonesian Region, establishing special sciences on marine and tropical culture in the form "science & engineering cells" in trans-, multi-, as well as inter-disciplinary studies (e.g. IZCM);
  - Medium-term (5 years): developing hands-on skills in operating lab equipments, continuing the joint research studies and joint international publications (journals, books), carrying out research studies leading to establishment of building & environmental regulation, etc.
  - Annual (2009-2014): identifying research themes and subthemes, establishing methods & mechanisms for LBE, carrying out joint research studies, undertaking joint international publications, ... etc.
3. All staff returning back from Japan (both of long-term/S3 and short-term/research programs) should share knowledge and experiences regarding Japanese-style LBE to other staff of the Department by means of workshops and short-term training, and develop Unhas-style LBE considering the Unhas situation;
4. Future's 10 laboratories (kenkyushitsu) & 5 workshops (jikkenshitsu) at Gowa campus will accommodate education-research-community service

("tridharma") activities for research teams incorporating Professors, Doctors, graduate students, and final-year undergrad students.  
(please refer to Table)

	LABO	Present lecturers	Addition future lecturers
Building Science & Structure	Building Science	Ramli Rahim	Bahar Hamzah (Hongkong, lighting), Ony Asniawati (Oita, acoustic), Rosadi (Nagoya, termal), Nurul Jamala(UGM, Mikro lighting)
	Building material and Structure	Victor Sampebulu	Nasruddin (Kyushu, concrete&steel)
Architecture	Architecture, History & Behaviour	Ria Wikantari	Mufti Radja (Osaka, behavior)
	Interior & Furniture	???	Yayak (Kyushu, interior)
	Housing	Shirly Wunas	Idawarni (ITS, housing), Wiwik (ITS, Housing), Samsuddin (ITS, Housing)
U&R Planning	Environment studies		Afifah (Kyushu, environment)
	Disaster mitigation	???	Mukti Ali (Tohoku, disaster management)
	Urban planning & Design	Yudono	Arifuddin Akil (ITS, Urban planning), Nurul Najmi (UGM, urban planning)
	Regional planning	Bambang	
	Infrastructure planning	???	Yashinta (Vienna Univ, Urban infrastructure)

未定

???: 人員補充

2)Field of the JICA Experts(プロジェクト開始後の JICA 専門家の派遣に当たり、どの分野に重点を置くのか確認)

Disaster Mitigation, Urban Planning, Building Structure

都市防災,都市計画,建築構造

(3) Fellowship program(Research program for 6 months)

No	Issue	Idea of each candidate	Advice
1	Purpose and Goal of the program (個人の能力向上のみならず、研修成果	Candidate: Professor Dr. Ir. M. Ramli Rahim Daylighting Strategies for Healthful Environment Design : Daylighting Availability in Indonesia which is situated around the equator with humid tropical	○ 光環境に関する研究であり、インドネシア地域をはじめとする熱帯地域の建築・都市デザインに貢献する重要な研究テーマの一つと考える。

が大学、地域に還元されることを意識付ける)	climate is plentiful. The daylight should be efficiently for interior lighting. The study and measurement and utilization of daylight, disability glare and discomfort glare should be conducted in various part of Indonesia				
2 Action Plan for 6 months (研究能力向上・教育能力向上のバランスを図る、Action Planは候補者が作成)	1. Discussion on measurement and utilization of daylight. 2. Study on daylighting design in terms of light and health – including evaluation of disability glare and discomfort glare, and other factors in quality of light. 3. The research collaboration	○ 最初のバッチは重要であり、光環境の共同研究を通じて緊密な関係が期待される。			
3 Suitable university and faculty in Japan for each candidate	Dr, Yasuko KOGA Faculty of Human Environment Studies, Kyushu University	○ 受け入れ側との意見交換および今回のフェローシップに関する文書のやりとりを進めている。			

(4) Equipment List

No	Issue	Existing List(◎、○、△、×)	Situation(Feature)	Advice	Collecting Data
1	Equipment List (現有機材(教育用・研究用)のリスト化を指示、また、学科内の現有機材を直接確認)			○ コンサルタントに提出済みである。 ● 古い機材が多く、早期更新が待たれる。	
2	Equipment list for new campus (最新機材リストを確認し、重大な問題があれば協議)			○ コンサルタントと協議済みである。	

(5) 調査全体を通じた所感(日本語のみ)

1) 学科との会議を通じた全体所感(その内容も含む)

- LBE にむけた教員の意識は高いと思われる。
- 海外で学位を取得した6人 (このうち日本は4人) の教員を軸に、始められるところから LBE に移行する予定である。
- 今年から若手教員を日本に送り出し、彼らが学位を取得して帰国するまでの4年間、残った教員で彼らの穴をカバーしつつ、うまく持ちこたえながら LBE をスタートしなければならぬ。
- 現在の教員の年代別構成は以下の通りであり、50代の割合が低く (18%) 40代の割合が高い (40%)。次の世代を担う40代の意識改革は重要である。

Faculty members by ages

Ages	60s	50s	40s	30s	Total	Ratio
Professor	3	2	0	0	5	9%
Senior Lecturer	6	8	3	0	17	30%
Lecturer	4	0	15	2	21	37%
Others	0	0	5	9	14	25%
Total	13	10	23	11	57	100%
Ratio	23%	18%	40%	19%	100%	

2) 国内の大学との協力・連携の可能性(中・長期的な可能性も含む)

内容	可能性
教育面	単位互換制度
研究面	共同研究

### 3 電気・電子

#### (1) Basic Issue for Education

Issue	Situation(Feature)	Advice	Collecting Data
1.Course Program	<p>①Number of course program</p> <p>3 course in Study Program of Electrical Engineering</p> <p>New Study Program of Informatics is decided to open from next Semester from September.</p>	No advice is necessary. Properly adjusted for the local situation.	Data collected
	<p>②Contents of course program</p> <p>1. Electrical Energy Engineering and Telecommunication Information Engineering</p> <p>2. Computer, Control and Electronic Engineering</p>	No advice is necessary. Properly adjusted for the local situation.	Data collected
	<p>③Evaluation for course as a whole (授業の評価)</p> <p>Asking the evaluation by outside Alumni in 2 or 3 years after the installation of new or modified curriculum. Evaluation by students is also done, but not systematic and very limited.</p>	Transferred the information about how to evaluate the course in the TUT EEE. Evaluation by the student is better to be introduced, but under the consideration of local custom.	No data
	<p>④Evaluation of teaching or supporting staff (教員の評価)</p> <p>Only absence in the lecture is checked at moment. Evaluation opinion by other staff or student is collected if necessary.</p>	Transferred the information about how to evaluate the course in the TUT EEE. Evaluation by the student is better to be introduced, but under the consideration of local custom.	No data
2 .Curriculum	①Contents of	Syllabus for Government	Example

	curriculum(具体的な内容を 確認しつつ課題を整理)	accreditation is existed (Examples attached).	local situation.	data collected.
	② Timetable of each semester and number of classes in each term(時間割)	See copy attached	No advice is necessary. Properly adjusted for the local situation.	Data collected.
3.Syllabus (具体的な内容を 確認しつつ課題を整理)		Syllabus for Government accreditation is existed (Examples attached). Syllabus for student is not prepared, but at the first lecture the teaching staff makes the explanation of the lecture.	Syllabus for student is better to be prepared, but under the consideration of budget and local custom.	Example data collected.
4. Resource allocation of each department	① Assignment of teaching staff to each study program (授業ブ ログラムの教員の割り 振り) ② Allocation of experimental laboratory (実験室の割り振り) ③ Number of Subjects allocated to each staff (科目時間数の割り振り)	We have a general staff meeting every semester before the beginning of semester to distribute teaching assignment.  Depend on courses  3 – 4 subject each semester per staff	No advice is necessary. Properly adjusted for the local situation. It is better to continue the efforts to have more time for research work.  No advice is necessary. Properly adjusted for the local situation. It is better to continue the efforts to have more time for research work.	Data collected.

(2) Action Plan for Improvement of Education and Research system(Idea)

(PDM(案)の活動項目に基づき、学科活動計画(案・4 半期毎)を作成する。短期専門家派遣は主に3、9 月が中心のため専門家不在時期も勘案のこと。項目の適宜追加、変更をお願いします)

Issue(Education)	1 <sup>st</sup> Year (2008)			2 <sup>nd</sup> Year (2009)			3 <sup>rd</sup> Year (2010)		
To set a taskforce for revising curriculum and syllabus in each department									
To survey for social needs for the engineering field in northeast part of Indonesia									
Curriculum	① To grasp current situation								
	② To sort out the current syllabus into usable one and the one which requires revision								
	③ To revise (for freshman and sophomore)								
	④ To revise(for junior year and college senior)								
Syllabus	① To grasp current situation								
	② To sort out the current syllabus into usable one and the one which requires revision								
	③ To revise (for freshman and sophomore)								
	④ To revise (for junior year and								



Teaching material	college senior)	①To sort out the current teaching material into usable one and the one which requires revision ②To revise(for each subject)																			
Introduction of education cycle		①To understand the idea of education cycle ②To implement the of education cycle																			
Lecture note		① To sort out the current lecture note into usable one and the one which requires revision ②To revise (for each subject)																			
Instruction Manuals		①To sort out the manual into usable one and the one which requires revision ②To revise (for each subject)																			

Issue(Research/Introduction of Labo-based education)	1 <sup>st</sup> Year (2008)	2 <sup>nd</sup> Year (2009)	3 <sup>rd</sup> Year (2010)
To understand the concept of Labo-based education system			
To set up laboratories according to the concept			
To introduce Labo-based education system			

(追加項目)

1)How to Introduce Lab-Based Education

(学科毎に具体的な Lab-Based Education の導入について体制〔人員・予算〕等、方法論について相談する。)

It became clear during the discussion that the definition of Laboratory in LBE is different between in UNHAS and in Japan. In UNHAS or Indonesia, Lab means the Lab for student practice, while in Japan Lab for research work. So the information about the Japanese LBE is transferred and we discussed why Japanese type LBE is necessary for upgrading the situation of UNHAS in Indonesia. Although the Lab system is different, the Project-Based-Learning (corresponding to the basic type of Japanese LBE) is already done as a final project in Bachelor course in Electrical Engineering department and the teaching staffs have the powers to organize the international conference. So the introduction of Japanese type LBE is not so difficult. The point is how to level up the activities and the motivation of teaching staffs for research works under the circumstance and the habit in Indonesia.

2)Field of the JICA Experts(プロジェクト開始後の JICA 専門家の派遣に当たり、どの分野に重点を置くのか確認)

According to 3 study courses, the JICA experts are desired on 3 fields of Electrical Energy Engineering, Telecommunication and Information Engineering and Computer, Control and Electronic Engineering.

( 3 ) Fellowship program(Research program for 6 months)

No	Issue	Idea of each candidate	Advice
1	Purpose and Goal of the program (個人の能力向上のための、研修成果が大学、地域に還元されることを意識付ける)	Satellite telecommunication This theme is useful especially for the country of islands like Indonesia.	No advice is necessary for the purpose and the goal of the program, since the candidate knows well about the intention of the program and selected the research theme adjusted to the local problem in this area. He wants to solve the problem and level up the satellite communication due to the strong rain in this area.
2	Action Plan for 6 months (研究能力向上・教育能力向上のバランスを図る、Action Plan は候補者が作成)	1 : Settling down in Japan and the preparation for research work. 2-5 : Research work 6 : Writing the paper about the research.	Candidate must consider that 6 months is too short really to do a research work. Very strong motivation and the efforts are necessary.
3	Suitable university and faculty in Japan for each candidate	Kyushu University where he took a Dr. degree or Nagoya University where the collaboration work about the satellite communication is done with Kyushu University	Kyushu University is preferable where he can start the research work easier because he already knows the situation there.

(4) Equipment List

No	Issue	Existing List(◎、○、△、×)	Situation(Feature)	Advice	Collecting Data
1	Equipment List (現有機材(教育用・研究用)のリスト化を指示、また、学科内の現有機材を直接確認)	○	Equipment list is existed (See attached list)	No advice is necessary.	Data collected.

2	Equipment list for new campus (最新機材リストを確認し、重大な問題があれば協議)	©	See attached file	It is better to continue the efforts to input the research equipment as much as possible.	Data collected.
---	--	---	-------------------	---	-----------------

(5) 調査全体を通じた所感(日本語のみ)

1) 学科との会議を通じた全体所感(その他内容も含む)

UNHAS 電気工学科の状況はインドネシア内の電気工学科の中では地域に根ざして頑張っている部類に属すると感じた。LBE を含む教育改革についても、積極的に取り組む姿勢が認められ、毎年のカリキュラムのマイナーチェンジを含め、大幅な見直しが5年毎に行われている。また、例えば、来年度からはコンピュータ分野について Informatics の学習コースを立ち上げ、翌年度には学科に昇格させるなどの改革が実際に行われている。シラバスについては、Accreditation 用資料として作成されており、それにほぼ従って形で授業等がなされていることを確認したが、これらは他の教員や学生が見たいときに見られる状況になってはいない。ただ、学生による各種の要求デモがほとんど無くなった日本と違い、大校内でデモが日常茶判事的にある状況のもとでは、シラバスを全員に公開するという日本のやり方が望ましくはあっても、細かいことをつかれたりすると実際問題としては Time consuming になってしまふ恐れもある。最初の授業で講義全体を説明し情報開示に努力していることを考え合わせれば、現地の状況に合ったやり方で行われているのかも知れない。教員としては、教授3名、博士4名(教授を除く)、修士37名、学生11名の計55名がいるが、そのうち研究を実際に行っているのは、教授1名、博士2名、修士7名の計10名に過ぎないようである。UNHAS の地位を彼らの希望どおりに世界に通用するレベルに持って行くためには、教員の研究能力を全体として高める必要がある。能力のある教員ほどアルバイトで多くの副収入を得ており、そのために多くの時間を割いて研究に割く時間が少なくなっている現状を、本人の意識だけに頼って改革しようとしても困難であり、インドネシアの大学全体の教員の収入アップとそれに伴う副収入の制限による研究時間の確保などが必要と思うが、前者の収入アップは実行されつつものの、副収入の制限はそれらの決定に関わる者ほど副収入で多くの収入を得ている現状では身を削る改革になり困難かも知れない。

JICA 短期専門家の派遣分野に関しては、UNHAS としては電力、通信、制御・コンピュータの3分野を希望しているが、短期専門家の訪問によるレベルアップは時間的に制限があるのでインドネシアの事情に通じた、経験のある専門家を選定する必要がある。3分野の中では、実情として電力分野に実力のある教員が最も多く、国際会議出席も含め研究実績も最も高く、地元企業のための特別授業や共同研究なども多く実施しており、最も可能性が高いと思う。従って、この電力分野をもっと成長させて、その経験を他の2分野へ波及させていくのが、最も現実的かも知れない。

2)国内の大学との協力・連携の可能性(中・長期的な可能性も含む)

	内容	可能性
教育面	単位互換制度	単位互換制度を形成すること自体は可能であるが、互いの講義をそのままで聴いて単位互換を行うためには語学の壁が立ちはだかっており、特に、日本の学生はインドネシア語を理解する必要がある。実際に単位互換を希望する学生はごく少数である可能性が高く、UNHAS では英語による講義はほとんど行われていないようであるので、日本人学生用に special にやっってもらおうとすれば、多くの努力と時間を必要とする可能性がある。一方、日本の大学がインドネシア学生を受け入れて英語コースで単位を与えられることは比較的容易と思われるが、生活コスト授業コストなどの経済面での問題を解決する必要があり、大学予算が大幅に削られている現状では大学としての予算面も含めた戦略の裏付けが必要である。
研究面	共同研究	日本で学位を取った大学との共同研究、研究上近い分野の大学との共同研究などの可能性は大いにある。私自身も時間が許せば、共同研究を実施可能である。

4 機械

( 1 ) Basic Issue for Education

Issue	Situation(Feature)	Advice	Collecting Data
1.Course Program	<p>①Number of course program</p> <p>There are two study programs in ME Dep., e.a: Mechanical Engineering Study Program, and Industrial Engineering Study Program</p>	<p>It seems that the courses are appropriate. The name of sub-study program "Construction" had better been changed to, for example, "Manufacture" or some other name. It reminds us of civil engineering.</p>	
②Contents of course program	<p>Mechanical Engineering consists of three course programs such as Energy conversion, Metallurgy, and Construction.</p> <p>And for Industrial Engineering Study Program only one course program is Industrial Engineering.</p>	<p>The subjects of the three sub-study programs in mechanical engineering course are similar. It is expected that the difference among three sub-study programs becomes clear in the LBE such as the final project.</p>	
③Evaluation for course as a whole (授業の評価)	<p>There is a formal meeting in each semester to evaluate the course before the next semester starts, the members of the meeting are whole lecture in Mechanical Department. In the middle of semester, the head of department evaluates again the teaching staff and the students.</p>	<p>The existence of such an evaluation system is good.</p>	
④Evaluation of teaching or supporting staff	<p>The performance of teaching staff would be evaluated every year by the head of department and the dean of faculty.</p>	<p>It is desirable that the evaluation system from students is introduced. Students evaluate the contents and teaching method of each subject.</p>	

2. Curriculum	(教員の評価)		This is useful for improving teaching method and/or the contents of the subject.	
①Contents of curriculum(具体的な内容を確認しつつ課題を整理)	Mechanical Engineering Curriculum consists of 145 credit courses in eight semesters. Contents of Mechanical Engineering curriculum consist of <b>1. Basic Science</b> such as calculus, physic and engineering chemistry. <b>2. Basic engineering science</b> such as engineering drawing, material science, thermodynamic, fluid mechanics, engineering mathematics, strength of materials, kinematics and dynamics, production process, machine element, heat transfer, etc. <b>3. Applied engineering science</b> such as Fluid machines, Combustion engine, Steam turbine, gas turbine, engine design, robotics, heat exchanger, failure analysis, corrosion and protection, maintenance, mechanic vibration. <b>4. General science</b> such as English, religion, culture and social science, pancasila, citizen science	Mechanical Engineering Curriculum consists of 145 credit courses in eight semesters. Contents of Mechanical Engineering curriculum consist of <b>1. Basic Science</b> such as calculus, physic and engineering chemistry. <b>2. Basic engineering science</b> such as engineering drawing, material science, thermodynamic, fluid mechanics, engineering mathematics, strength of materials, kinematics and dynamics, production process, machine element, heat transfer, etc. <b>3. Applied engineering science</b> such as Fluid machines, Combustion engine, Steam turbine, gas turbine, engine design, robotics, heat exchanger, failure analysis, corrosion and protection, maintenance, mechanic vibration. <b>4. General science</b> such as English, religion, culture and social science, pancasila, citizen science	Contents of curriculum seem appropriate. Teaching materials are given to students in all the subjects. Some improvement had better be done with reference to, for example, recently published or great (English) technical books. At the new campus, a new computer system is equipped and a new subject such as numerical calculation and/or numerical analysis had better be introduced in the education program.	
②Timetable of each semester and number of classes in each	For timetable please see the appendix: Schedule of Subjects.	The number of the classes in each semester is almost the same.		Timetable

	term(時間割)			
3. Syllabus (具体的な内容を確認しつつ課題を整理)		91% of subjects have their syllabuses provided by lecturer who teaches the subject. Syllabus consists of Goal or purpose of the subject, contents of the subject, teaching method, time allocation and information for reference books. In the first class meeting, teacher gives the student the syllabus of the subject.	The contents of the syllabus are appropriate but the information on the evaluation criterion of the student's score had better be included.	Syllabus (an example)
4. Resource allocation of each department	① Assignment of teaching staff to each study program (授業プログラムの教員の割り振り)	Assignment of teaching staff in mechanical engineering based on their education: S1 : 13 staff S2 : 31 staff S3 : 10 staff Senior Assistant : 13 staff Assistant Professor : 13 staff Associates Professor : 22 staff Professor : 7 staff Mechanical Engineering Study Program: Energy Conversion : 18 staff Construction : 16 staff Metallurgy : 10 staff Industrial Engineering Study Program: Industrial engineering : 10 staff Every teaching staff has to provide teaching	It seems that the assignment of teaching staffs to each study programs is not bad.	



		materials before class begins and teaches on schedule. Beside teaching, staff should make research and social service or apply the result of research in the community	
Allocation of experimental laboratory(実験室の割り振り)	Every teaching staff can use laboratory every time they need. Students take laboratory practices depending on the subject and usually scheduled by each laboratory, and so with their final project.	Space is not enough to do laboratory activity such as LBE at present. The situation will be improved at the new campus.	
Number of Subjects allocated to each staff (科目時間数の割り振り)	Each staff takes 3 to 6 subject each semester. Teaching load is much different among teaching staffs.	The teaching load is much different among staffs at present. In order for the difference to be reduced, the allocation of teaching staffs has to be planned for future.	

(2) Action Plan for Improvement of Education and Research system (Idea)

(PDM(案)の活動項目に基づき、学科活動計画(案・4 半期毎)を作成する。短期専門家派遣は主に 3、9 月が中心のため専門家不在時期も勘案のこ  
と。項目の適宜追加、変更をお願いします)

Issue(Education)	1 <sup>st</sup> Year			2 <sup>nd</sup> Year			3 <sup>rd</sup> Year		
To set a taskforce for revising curriculum and syllabus in each department									
To survey for social needs for the engineering field in northeast part of Indonesia									
Curriculum ① To grasp current situation									





(追加項目)

**1)How to Introduce Lab-Based Education**

(学科毎に具体的な Lab-Based Education の導入について体制〔人員・予算〕等、方法論について相談する。)

Lab Based Education will introduce with socialization activity to each staff by invite the Lab Based Education expert, seminar and workshop, benchmarking to other university with Lab based education system.

**2)Field of the JICA Experts(プロジェクト開始後の JICA 専門家の派遣に当たり、どの分野に重点を置くのか確認)**

(3) Fellowship program(Research program for 6 months)

No	Issue	Idea of each candidate	Advice
1	Purpose and Goal of the program (個人の能力向上のみならず、研修成果が大学、地域に還元されることを意識付ける)		
2	Action Plan for 6 months (研究能力向上・教育能力向上のバランスを図る、Action Plan は候補者が作成)		
3	Suitable university and faculty in Japan for each candidate		

(4) Equipment List

No	Issue	Existing List(◎、○、△、×)	Situation(Feature)	Advice	Collecting Data
1	Equipment List (現有機材(教育用・研究用)のリスト化を指示、また、学科内の現有機材を直接確認)	○	There are 17 laboratories in ME, each laboratory has app. 3 to 5 main equipments. One equipment can serve 5 students. The equipment operates for 2 hours per day. Most of main equipment aged more than 25 years old with poor condition. Based on this condition many laboratory activity just for teach purpose not suitable for research activity.	The number of equipment or machines is very small in a few laboratories. The majority of or almost all the equipment is out of order in a few laboratories. Equipment has to be well maintained and be tried to repair it in case of failure.	Photographs of main existing equipment and machines
2	Equipment list for new campus (最新機材リストを確認し、重大な問題があれば協議)	○	Based on equipment list for new campus, some of the equipment replaces the old equipment and there is some new sophisticated equipment. This new equipment will support both for teaching and research activity.	The specifications of the majority of equipment have not been determined yet. Quick determination is requested in order for wrong equipment not to be delivered.	

(5) 調査全体を通じた所感(日本語のみ)

1)学科との会議を通じた全体所感(その内容も含む)

若手の Lecturer (日本で言えば助手から若手の准教授クラス) 2, 3 人が対応してくれ、彼らが上の文章等の作成を行った。学科の代表として対応しているとのことであるが、多少の不安を感じる。

打合せ二日目に学科内でLBEについての会議（出席者8名）が開催されたので、その際に豊橋技科大（TUT）機械システム工学系および柳田研究室におけるLBEシステムについてパワーポイントを使って説明した。参考になったか否かは不明であるが、UNHASの機械では4つのサブプログラムから1Labずつ計4つのLabでLBEを進めていくとのことである。研究テーマと概要を私が受け取り、例えばTUTの機械と共同研究の可能性について後日返事をすることになっている。内容が不明または研究に思われないと思われるテーマが少なからず含まれており、テーマについての助言が必要である。年齢の高い教員からはLBEに批判的な発言（研究費がないので何もできない、など）が出されていたが、若手の教員からは、繰り返し申請して少しずつでも研究費を取ってくるようにしないなど、前向きな発言が出されていた。

2)国内の大学との協力・連携の可能性(中・長期的な可能性も含む)

	内容	可能性
教育面	単位互換制度	あり
研究面	共同研究	現状は困難だが、新しい設備導入後、また、フェローシッププログラム修了者の帰国後は可能になると思われる。

5 地質

( 1 ) Basic Issue for Education

Issue	Situation(Feature)	Advice	Collecting Data
1.Course Program ①Number of course program ②Contents of course program	2 for S1 1 for S2 S1 (1) Geology (2) Mining S2 Geology	Creation of Mining Course for S2 program is recommended. For that purpose, more S2 students from S1 graduates as well as those from other universities especially in northeastern Indonesia are encouraged. In addition, increase of the number of academic staff for mining is necessary.	
③Evaluation for course as a whole (授業の評価) ④Evaluation of teaching or supporting staff (教員の評価)	To be done in three years, by faculty staffs' workshop. This works good so far. To be done in three years, by faculty staffs' workshop. This works good so far.	It is better to accept opinions from students. It is better to accept opinions from students.	
2 .Curriculum ①Contents of curriculum(具体的な内容を確認しつつ課題を整理) ②Timetable of each semester	Students are taught by spending time in fieldwork and in laboratory exercise. 15 subjects are provided in semester VII. Then, research work for graduation thesis	This sounds good. Subjects for classes, laboratory exercises to be completed in three years, and the final year to be	

	and number of classes in each term(時間割)	starts in semester VIII. This duration is not enough for exercise in laboratory experiments for graduation thesis research.	spent for research work for graduation thesis.	
3. Syllabus (具体的な内容を確認しつつ課題を整理)		In Indonesian. Some lectures distribute the syllabus of the selected subjects to the students, but not all currently.	It is advised to distribute the syllabus of all subjects to all students, as well as to be distributed by web system, so that all the students can view the contents to select that subject. Then, students may evaluate the class if it has been properly provided or not.	
4. Resource allocation of each department	① Assignment of teaching staff to each study program (授業プログラムの教員の割り振り) ② Allocation of experimental laboratory(実験室の割り振り)	Not distributed evenly. Semester I to V for common subjects, and Semester VI to VII for selective subject for concentration. But there are some laboratories that do not provide subjects in Semester VI to VII.  Not distributed evenly. Some laboratories have been engaged until midnight, but some are not used.  In some subjects of laboratory experiment, all students cannot be accommodated at one time, so that students are divided into several groups, and they are taught in different time	It is advised to distribute evenly.  Large experimental laboratory and enough number of equipments that can accommodate all the students at one time are necessary, if budget permits. However, for experiment exercise, this needs teaching assistants.	



	period in one day. That is reason why some laboratories are engaged until midnight.							
	The number of students is too large to handle.							
③Number of Subjects allocated to each staff (科目時間数の割り振り)	Not distributed evenly.							It is advised to distribute evenly.

(2) Action Plan for Improvement of Education and Research system (Idea)

(PDM(案)の活動項目に基づき、学科活動計画(案・4半期毎)を作成する。短期専門家派遣は主に3、9月が中心のため専門家不在時期も勘案のと。項目の適宜追加、変更をお願いします) →

Issue(Education)	1 <sup>st</sup> Year (2009)	2 <sup>nd</sup> Year (2010)	3 <sup>rd</sup> Year (2011)
To set a taskforce for revising curriculum and syllabus in each department	<----->		<----->
To survey for social needs for the engineering field in northeast part of Indonesia	<---		<---
Curriculum	① To grasp current situation	---	---
	② To sort out the current syllabus into usable one and the one which requires revision	<---	<---



note	note into usable one and the one which requires revision																	
	②To revise (for each subject)	<---																
	① To sort out the manual into usable one and the one which requires revision	<---																
Instruction Manuals	②To revise (for each subject)	<---																

Issue(Research/Introduction of Labo-based education)	1 <sup>st</sup> Year	2 <sup>nd</sup> Year						3 <sup>rd</sup> Year											
	To understand the concept of Labo-based education system	----->																	
To set up laboratories according to the concept																			
To introduce Labo-based education system																			

(追加項目)

1) How to Introduce Lab-Based Education

(学科毎に具体的な Lab-Based Education の導入について体制 [人員・予算] 等、方法論について相談する。)

(1) Revise curriculum: finish class subjects until semester VI (third year), then final year on research with laboratory experiments.

(2) Establish research groups. Already existing, but not all work well.

2) Field of the JICA Experts(プロジェクト開始後の JICA 専門家の派遣に当たり、どの分野に重点を置くのか確認)

--

( 3 ) Fellowship program (Research program for 6 months)

No	Issue	Idea of each candidate	Advice
1	Purpose and Goal of the program (個人の能力向上のみならず、研修成果が大学、地域に還元されることを意識付ける)	(1) Learn laboratory management, (2) Learn how to operate and maintain equipments (3) Improve academic writing skills.	
2	Action Plan for 6 months (研究能力向上・教育能力向上のバランスを図る、Action Plan は候補者が作成)	(1) Participation in laboratory activities such as weekly seminar. (2) Laboratory exercises. (3) preparation of manuscript to submit to international journal. (4) presentation of paper in international conference.	
3	Suitable university and faculty in Japan for each candidate	Kyushu University	

(4) Equipment List

No	Issue	Existing List(◎、○、△、×)	Situation(Feature)	Advice	Collecting Data
1	Equipment List (現有機材(教育用・研究用)のリスト化を指示、また、学科内の現有機材を直接確認)				
2	Equipment list for new campus (最新機材リストを確認し、重大な問題があれば協議)				

(5) 調査全体を通じた所感 (日本語のみ)

- 1) 学科との会議を通じた全体所感 (その内容も含む)

Action plan is still tentative. It may be modified based on the plan of the faculty and other departments.

Currently, students have two advisors. It appears good.

- 2) 国内の大学との協力・連携の可能性(中・長期的な可能性も含む)

	内容	可能性
教育面	単位互換制度	九州大学(学部間協定手続き中)
研究面	共同研究	九州大学, 秋田大学, 千葉大学, 熊本大学

6 海洋

( 1 ) Basic Issue for Education

Issue	Situation(Feature)	Advice	Collecting Data
1.Course Program	<p>①Number of course program</p> <p>Three courses of Naval Architecture (NA), Marine Systems Engineering (MSE), and Ocean Engineering (OE) are set now in the department. NA has three master course students.</p>	<p>No</p>	
②Contents of course program	<p>There exist programs of NA, MSE and OE.</p>	<p>The research fields of Marine environment, Marine energy and resources should be included in content of OE's program.</p>	
③Evaluation for course as a whole (授業の評価)	<p>In 4th years, the evaluation by dean and department head has been carried out.</p>	<p>Mutual evaluation by a teacher should be considered.</p>	
④Evaluation of teaching or supporting staff (教員の評価)	<p>In six month (semester), the evaluation by department head has been carried out.</p>	<p>It is desirable to introduce the concrete evaluation method for education, research and social activities.</p>	
2 .Curriculum	<p>①Contents of curriculum(具体的な内容を確認しつつ課題を整理)</p> <p>See attached</p>	<p>Contents-rich curriculum seems to be set. Introduction of classes of Global environment, Marine environment, Utilization of ocean energy &amp; resources are expected.</p>	<p>Appendix-1</p>

	<p>② Timetable of each semester and number of classes in each term(時間割)</p>	See attached	No	Appendix-2
3. Syllabus (具体的な内容を確認しつつ課題を整理)		See attached	We cannot recognize the class contents with the current syllabus. Syllabus of English version has to be completed.	Appendix-3 Appendix-4A Appendix-5 Appendix-6
4. Resource allocation of each department	① Assignment of teaching staff to each study program (授業プログラムの教員の割り振り)	See attached	There seem to be many young lecturers, particularly, in OE course. Most of all classes of undergraduate program are in charge of plural teachers. There is no student in the graduate school now, however the grade up of the young lecturer is expected so that it will be possible for teaching class that took in the results of their researches to be in high specialty in future.	Appendix-2 Appendix-7
	② Allocation of experimental laboratory(実験室の割り振り)	<p>Main facilities for experiments:</p> <ul style="list-style-type: none"> <li>• 2 Tanks(towing tank and wave tank)</li> <li>• Heat transfer(propulsion machinery)</li> <li>• Welding equipment</li> <li>• PCs for computer aided design</li> </ul> <p>(See attached photographs)</p>	The facilities look very old. They should be renewed.	Appendix-8

	③Number of Subjects allocated to each staff (科目時間数の割り振り)	See attached	No	Appendix-7
--	--	--------------	----	------------

(2) Action Plan for Improvement of Education and Research system(Idea)

(PDM(案)の活動項目に基づき、学科活動計画(案・4 半期毎)を作成する。短期専門家派遣は主に 3、9 月が中心のため専門家不在時期も勘案のこと。項目の適宜追加、変更をお願いします)

Issue(Education)	1 <sup>st</sup> Year				2 <sup>nd</sup> Year				3 <sup>rd</sup> Year							
To set a taskforce for revising curriculum and syllabus in each department																
To survey for social needs for the engineering field in northeast part of Indonesia																
Curriculum	① To grasp current situation															
	② To sort out the current syllabus into usable one and the one which requires revision															
	③ To revise(for freshman and sophomore)															
	④ To revise(for junior year and college senior)															
Syllabus	① To grasp current situation															





Issue(Research/Introduction of Labo-based education)	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year
To understand the concept of Labo-based education system			
To set up laboratories according to the concept			
To introduce Labo-based education system			

(追加項目)

### 1)How to Introduce Lab-Based Education

(学科毎に具体的な Lab-Based Education の導入について体制〔人員・予算〕等、方法論について相談する。)

- Desirable Lab number is almost 10: 4 for NA, 3 for MES, 3 for OE. However, at present, number of candidates of Lab leader is 3 or 4. For the present, total 3 Labs which are composed of each Lab from NA, MES and OE should be established.
- Lab formation should be as follows: 1 leader, 3 or 4 lecturers, graduate school students (S3, S2) and under graduate students (S1).
- Desirable research theme is as follows:
  - New development of a ship used in Indonesia by means of a towing tank (for NA and MES)
  - Ocean environment, new energy and new resources (for OE)

### 2)Field of the JICA Experts(プロジェクト開始後の JICA 専門家の派遣に当たり、どの分野に重点を置くのか確認)

For the present, they should lay emphasis on the mastery of tank test technology.

(3) Fellowship program(Research program for 6 months)

No	Issue	Idea of each candidate	Advice
1	Purpose and Goal of the program (個人の能力向上のみならず、研修成果が大学、地域に還元されることを意識付ける)	To improve research equality of UNHAS and to contribute East Indonesian needs, they are planning as follows: (1) developments of high speed catamaran ferry, passenger vessel, patrol boat etc. (2) and port construction	We advised the 1 <sup>st</sup> candidate to <ul style="list-style-type: none"> <li>visit many laboratories in Japan's university to learn Labo-based education system</li> <li>consider a cooperative research themes with Japanese university for UNHAS' Labo.</li> </ul>
2	Action Plan for 6 months (研究能力向上・教育能力向上のバランスを図る、Action Planは候補者が作成)	See attached research proposal written by the 1 <sup>st</sup> candidate. (Research Proposal for 6 months Fellowship Program at Hiroshima University.DOC)	No
3	Suitable university and faculty in Japan for each candidate	Dep. Social and environmental systems engineering, faculty of engineering, Hiroshima Univ., for 1 <sup>st</sup> candidate	No

(4) Equipment List

No	Issue	Existing List(◎、○、△、×)	Situation(Feature)	Advice	Collecting Data
1	Equipment List (現有機材(教育用・研究用)のリスト化を指示、また、学科内の現有機材を直接確認)	×	We checked the main facilities for experiments as follows: <ul style="list-style-type: none"> <li>• 2 Tanks(towing tank and wave tank)</li> <li>• Heat transfer(propulsion machinery)</li> <li>• Welding equipment</li> <li>• PCs for computer aided design</li> </ul> (See attached photographs)	The facilities look very old. 2 tanks are too small to carry out experimental study on the ship. They should be renewed if possible.	Appendix-8
2	Equipment list for new campus (最新機材リストを確認し、重大な問題があれば協議)	○	Equipments for tank tests(resistance test and seakeeping test) are insufficient.	We advised to put the following equipments to the list: 1. ship models for check, towing guides (fore and aft), model attitude change measurement equipments using Laser (fore and aft), resistance dynamometer, other equipments for connecting the model to towing carriage, and amplifiers for dynamometer and equipments for resistance test. 2. towing guides (fore and aft), ship motion measurement equipments using Laser (surge, heave, pitch), wave height probe, other equipments for connecting the model to towing carriage,	

				<p>amplifiers for dynamometer and equipments, and swinging frame for moment inertia of ship model for seakeeping test</p> <p>3. a PC for data analysis, software for analysis, cables and, AD transfer.</p> <p>In addition, the following instruments related to OE were selected:</p> <ul style="list-style-type: none"> <li>- Marine equipments (CTD, velocity meter, wave height measurements etc.)</li> <li>- PC cluster (for marine environment simulator)</li> <li>- Satellite image data(ALOS Daichi)</li> <li>- wave tank (for education of ocean engineering)</li> </ul>
--	--	--	--	---

(5) 調査全体を通じた所感(日本語のみ)

1) 学科との会議を通じた全体所感(その他内容も含む)

- 他の学科に比べて、船舶海洋工学科は若い lecturer が育ってないように見える。LBE の導入にあたりその層を育てる必要があるように思われた。また、若手講師の育成が日本の大学との共同研究、支援のパイプ形成になるように配慮する必要がある。(教員育成、短期フェロー派遣等)
- インドネシア人の基本的な考え方や生活スタイル(すなわち、大雑把な考え方をすると)、仕事に関する考え方(副業やサラリーの問題)等、これら基礎となる部分の改革無しに、UNHAS を日本のようなラベースの研究を核とした大学にすることは容易なことではない。彼らの自尊心をあまり傷つけることなく、長い目で取り組んでいくべきと考える。
- Prof M. Alham, D, head of hydrodynamic lab が広大を含む日本大学の水槽を見に来たいとのことであった。積極的に協力する。
- 工学部の GOA キャンパス移転は UNHAS の理工系クラスター (工学部、自然科学・数学) の分断になる。今後、自然科学・数学科の GOA 新キャンパス移転も検討する必要があるようにも思われた。

2) 国内の大学との協力・連携の可能性(中・長期的な可能性も含む)

	内容	可能性
教育面	単位互換制度	<ul style="list-style-type: none"> <li>● 広島大学では、他大学との単位互換制度の議論が始まっている。中長期的には可能性あり。</li> <li>● 広島大学では国際環境リーダー育成プログラムが今年から始まるので、このプログラムを活用して、優秀な学生を招聘できる。</li> </ul>
研究面	共同研究	<ul style="list-style-type: none"> <li>● 広島大学工学部は曳航水槽を保有しており、ハサヌディン大学が保有する予定の曳航水槽の活用に関して指導できる。共同研究の可能性有り。</li> <li>● 海洋環境の保全やエネルギー利用の共同研究の可能性あり。例えば、海洋エネルギー（温度差発電：OTEC）等</li> <li>● 環境教育10年の影響で、国際協力(教育、環境)を目的とする教育研究費は増加している。これを利用することも可能。</li> </ul>