A Real time Impact Evaluation of Dr LEE Jong-wook–Seoul Project in Lao PDR: First-year interim report

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Executive Summary

Dr LEE Jong-Wook–Seoul Project and Backgrounds

1. The Dr LEE Jong-Wook–Seoul Project in Lao PDR is an ambitious development cooperation initiative funded by the Korea Foundation for International Healthcare (KOFIH), launched in 2010. In the project, the Lao University of Health Sciences (UHS) and the Seoul National University's College of Medicine (SNUMC) are collaborating for the capacity upgrading on the part of the UHS faculty members in medical education. The ultimate objective of the project is to contribute to the improvement of health status of Lao people. The project is based on the premise that upgrading of clinical education and training of the future health professionals represents a vital channel through which the ultimate goal will be attained in a sustainable manner, the developmental process owned by the Lao professionals.

2. The Project at the current stage is a three-year collaboration with an annual budget of USD 360,000 with a plan in place to extend the program period to total of 9 years. Fully implemented, the project envisions retraining of about 80 UHS professors at the SNUMC out of 300 professors at the UHS in total. The project also includes provisions to dispatch faculty advisors from SNUMC, and provide equipments and devices for education and research at the UHS.

3. The Project is inspired by the erstwhile collaboration between the SNUMC and the University of Minnesota under the aegis of the US ICA, 7 years from 1954 to 1961. The

project, known as the Minnesota Project in Korea, oversaw training of 77 SNUMC faculty members in the US, and involved 11 University of Minnesota faculty advisors invited to serve in Seoul during the project period. It is widely reputed to have a transformative impact on medical education and practice in Korea.

4. Recently remarkable progress has indeed taken place in reducing infant mortality and other ailments afflicting Lao PDR through combined efforts of the international donor community and the Lao government. In spite of significant improvement, the maternal and infantile mortality rates remain high in Laos, and meeting the MDGs is clearly a priority goal in the Lao Government's National Health Strategy.

5. At the same time, chronic dearth of qualified health workers is an acute problem. The WHO recommends minimum 2.5 health workers per 1,000 in population; the ratio stands at 1.53 in Lao PDR. At the heart of the health professionals deficit in Lao PDR lies the problem of deficient clinical skills training. Limited government budget means that only about 50% of the UHS graduates get employed in the state health sector, and that attrition is a serious issue as many doctors appointed in provincial and district facilities leave the medical profession. Those not retained mostly stop practicing, even though they could legally open their own private clinics, due to lack of sufficient clinical experiences. Deficiency in qualified doctors also adds to the difficulties in training of lower level health professionals.

6. To address the human resource challenge in the health sector, the Lao Government adopted in 2010 the Strategy for Health Personnel Development by 2020. The Strategy recognizes five pillars for the human resources development in the health sector, and envisions "sufficient number of qualified, motivated, and facilitated health workers……by 2020" together with separate numerical targets for 2015 and 2020. It is significant that the Strategy lists capacity building in the first place among the five recognized pillars.

7. Both the Lao Ministry of Health and the UHS on the one hand, and the international donor community on the other, recognize the need for investments for human resource development for sustained development of the health sector in line with the Lao Government's long-term strategic plan. And there have been international engagements indeed for the purpose. For instance, the Canadian government recently helped the UHS with a curriculum overhaul.

Even though the DR Lee Jong-Wook—Seoul Project is the largest of its kind in the history of the UHS, there have been numerous faculty exchange programs intended to help with faculty capacity building. Our sense is that these efforts have been too little, and all too scattered, to enable the UHS to mobilize its internal resources for sustained, long-term, strategic efforts for fundamental institutional transformation.

8. The Education Development Centre for Health Professions (EDC/HP) at the UHS was launched precisely to overcome this problem by serving as the vehicle for effective coordination of internal as well as international engagements for upgrading of clinical training and education at the UHS. The EDC/HP was launched in 2011; the critical challenge remains however where to find the financial resources to fund the initiative.

9. Amidst high hopes, partnering institutions in Laos and Korea have been working enthusiastically to overcome many challenges. Nonetheless, one may still be reasonable and skeptical that difficulties lurking at every stage of the long results chain might endanger the successful implementation. How fruitful will the intellectual collaboration be between the SNU and the UHS faculty members for the learning outcomes of the latter? Language barriers and differences in clinical practice conditions between the two countries should be substantial. How much of the learning would be successfully transmitted to the students at the UHS once the UHS participants return to Vientiane? The UHS faculty members themselves are well aware of the problems including poor physical infrastructure and student distraction and possibly low motivation due to limited job opportunities. How much of the learning, to the extent it does get transmitted, absorbed by the students would be put to practical use in clinical practice? As things stand in Lao PDR, it is only about 50% of the graduating class from the UHS that get jobs, and of the jobs only 70% are directly related to the provision of healthcare services. Retention of the healthcare professionals in the sector remains a severe challenge due to relatively low compensation and harsh working conditions, especially in the provincial areas. In view of these facts, would an engagement with practicing professionals in the field make a better investment sense, compared to a pre-service training intervention such as the Dr LEE Jong-Wook–Seoul Project?

Overall Research Design

10. The Impact Evaluation Lab at the KDI School of Public Policy and Management is collaborating with the partnering institutions and agencies both in Lao PDR and Korea, the UHS, the Lao Ministry of Health, the SNU College of Medicine, and the KOFIH to contribute to the institutions' own efforts at monitoring and evaluation. This volume is the first-year interim report of the collaborative efforts for assessment.

11. The collaboration has two main objectives: impact evaluation and real-time feedback to the partner institutions and agencies. The three-year timeframe for the collaboration renders impracticable tracing of the project's impact transmission down to the eventual outcome goal: improvement of the health status of the Lao people. In view of the limitation, the impact evaluation team decided to focus on a series of intermediate outcome measures. They are: learning outcomes for the UHS faculty members participating in the one-year exchange program at the SNU College of Medicine; the learning outcomes of the UHS students; and finally, improvements in the clinical practices of the young physicians upon their graduation from the UHS. The first of these is to be monitored and assessed by the UHS and the SNU College of Medicine. The KDI School's Impact Evaluation Lab is to focus on the latter two measures.

12. For the students' learning outcome measurement, the evaluation team has decided to employ the test battery developed and maintained by the Medical Education Assessment Consortium (MEAC) of Korea. The questions in the test, designed to assess the test-takers' mastery of medical science and clinical knowledge, have been translated into Lao. For measurement of young physicians' clinical practices, we have consulted the UHS and the Lao Ministry of Health and found out that the Lao ministry's Disease Treatment Committee (DTC) had developed two sets of indicators: the Standard Treatment Guidelines (STGs) and the Reasonable Use of Drugs (RUD) guidelines. The Lao ministry agreed to revive collection of individual physicians' STG and RUD data at the nation's major hospitals for the purpose of this impact evaluation. Baseline studies have been carried out to collect information on the UHS student learning using the MEAC test battery, and physician practices using the DTC data in late 2011. And the data collection will be carried out in two more rounds later this year and also in 2013.

13. Thus the impact evaluation strategy will compare the changes in the outcome measures over the years between the treatment and the control groups. The treatment group consists of the UHS students and the young physicians exposed to classes taught by the UHS faculty members returning from Seoul, and the controls the rest of the student population. Note that the same student may belong to the treatment or the control group depending on the choice of the subject area, as the student may take courses from both the DR Lee Jong-Wook Seoul professors and the others. If there is endogenous selection of subjects into the two groups, then the evaluation results may be subject to bias in one way or other. The impact evaluation team is in the process of consulting the UHS management to see the nature of student assignment between different sections of the same subject, and to find out whether randomized assignment of subjects (that is, students) into the treatment and the control groups is feasible.

14. Obviously, the results from the full impact evaluation exercise will be made available only in two years' time. But the team members felt that we already have valuable information to share with the partnering institutions and agencies as well as the wider development community within Korea and without, some of which is demanding publication as soon as possible for real-time feedbacks in the spirit of real-time impact evaluation. Apart from the layout of the evaluation designs, this interim report presents some of the salient findings from the baseline studies.

15. In addition, this interim report present some immediately actionable feedbacks. These feedbacks are based on a comparative case study of the Minnesota Project in Korea back in the 1950s and the Dr LEE Jong-Wook–Seoul Project, and a review of the existing Lao government policy for the development of health personnel as well as other health-sector programs funded by Korea and the other members of the international development community.

Salient Findings from the Baseline Studies

16. During September 5-6, 2011, the 2010 (June-December average) DTC data of 17 hospitals (2 central and 15 provincial hospitals) were collected for use as baseline data. There are altogether 20 major hospitals (4 central and 16 provincial hospitals) in Lao PDR. Although each hospital selected 3-5 important diseases, only a few diseases are common to many hospitals. The most common diseases selected are acute lung disease and severe diarrhea. Therefore, DTC data on acute lung diseases collected by 17 hospitals are presented below by region and poverty level.

17. Analysis of 2010 DTC data suggests that there is some variation in the quality of clinical practices across regions, and that the quality of care tends to be lower in poorer regions. Perhaps more surprisingly, DTC evaluation scores do not go up with doctors' years of practice. The latter evidence could be taken as a further rationale for a pre-service capacity building program of the Dr LEE Jong-Wook–Seoul Project type, in that on-the-job training fails to improve the level of clinical practice by physicians.

18. In order to measure the students' performance in a standardized test, we adopted the test of medical and clinical knowledge administered by the Medical Education Assessment Consortium (MEAC) in Korea. The MEAC implements a test of basic medicine for 2nd-year students in medical college, and a test of clinical medicine for 4th-year students in Korea. The level of the test questions is designed to be similar to that of the physicians' national exam for license, and controlled to be comparable across the years. One advantage in using the MEAC test battery is the natural benchmark against which to compare the UHS students' performance: how well the Korean medical students do in the test. The total number of questions is 260 for basic medicine and 480 for clinical medicine. We plan to give the full set of the test to the students at UHS for three years starting from 2012.

19. The first round of the test was conducted on the 17th-19th of January, 2012, which is in the registration period for the academic year of 2011-2012. The 2010 test of the MEAC was taken as test questions. The test of basic medicine was given to 5th year students who completed 4 years at the UHS, and the test of clinical medicine to 6th year students who completed 5 years. In the test of clinical medicine, the field of health regulation (20

questions) was discarded since the Korean details may not be relevant in the case of Laos. The participation rate of the test was 36.4% for 5th-year students, and 52.4% for 6th-year students.

20. For basic medicine, the mean percentage score was 24.4%. The minimum and maximum score are 15.8% and 35.0% respectively. The hypothesis that the mean is not different from the expected value of 20% is rejected at the conventional level of significance. In order to compare the academic performance of students at UHS and in Korea, the students who took the test at the end of 2nd year in medical college in Korea are considered as a comparison group. The mean score of the Korean students is 50.9%, and the ratio of the mean score of students at UHS to that of Korean students is 0.48. That is, according to the test results, the level of medical knowledge of students at UHS is around 48% of that of the Korean students.

From the Case Study of the Minnesota Project

21. Technical assistance program in the field of medical education and practice can yield a huge long-term benefit in spite of severely adversarial conditions that might make observers skeptical of the potential for success for such a program. There are many institutional and environmental parallels found in the Lao PDR on the one hand and the conditions that prevailed while Korea was a recipient of the technical assistance in the Minnesota Project on the other. Retention of trained professionals was a challenge in Korea back in the 1960s. Junior staff in the hospital did not expect to be paid, not considered part of the "full-time" staff. Such circumstances might lead one to suspect low morale for practice and learning and to doubt the potential for successful implementation of a technical assistance program. It is important to remember that the Minnesota Project eventually proved successful, overcoming the steep challenges.

22. The comparison of the Minnesota Program and the on-going collaboration between the UHS and the SNU College of Medicine suggests several venues through which strengthening of the current efforts might explore. First, there needs to be greater bi-directional engagement between SNU and UHS to enhance mutual accountability. A

case in point is dispatching of SNU faculty members to serve as on-site consultants. In the case of the Minnesota Program, US advisors were sent to Korea to serve as in-house consultants for long-periods of about 14.3 months on average.

23. The UHS-SNU program needs to take a more results-oriented approach, especially considering the field conditions faced by medical practitioners in Lao PDR. Since medical doctors are neither highly paid nor highly regarded as might be expected in richer countries, many of the UHS graduates might lack sufficient motivation to perform well. To adequately incentivize candidates, SNU should consider allowing the UHS candidates to study towards a degree or certification. To maximize the impact of the program, it should focus on nurturing the future leaders or agents of change of Lao. This would require having a competitive selection process to ensure the best and brightest are selected.

24. Besides targeting the future leaders, the program should also encourage participation in the exchange program by the senior managers or top leaders of UHS. Such a program component would necessarily have to be of a shorter duration, considering the administrative burden of the top management. A similar component in the Minnesota Project is reputed to have helped the SNUMC's management to better facilitate the newer way of doing things by their younger colleagues when they returned from their training stint in the US. For reference, the Minnesota Project first sent the senior management of SNUMC to the US for six months of training before sending faculty members to change the mindset of the top leadership at SNU. While exact imitation may not be feasible in view of logistical considerations, maximum efforts should be exerted to get the senior management of the UHS involved in the on-going exchanges.

25. Last but not least, the implementation of the program needs to be monitored and evaluated on a periodic basis to ensure progress and results. Under the OECD DAC principles for greater aid effectiveness, managing for results means having "transparent and monitorable performance assessment framework to assess progress against the national development strategies and sector programs." The collaboration between the SNU College of Medicine and the KDI School's Impact Evaluation Lab as well as the in-house assessment of the progress on the part of the SNU College of Medicine could be counted on to provide this framework.

Recommendations for Restructuring of Korea-funded Health-Sector Engagements in Lao PDR, including the Dr LEE Jong-Wook–Seoul Project

26. The erstwhile success of a similar program in Korea of course does not guarantee the success of the Dr LEE Jong-Wook Seoul project. The steep challenges presented by the field conditions, the logistical difficulties, and the baseline study results imply that efforts should be made to look for leverage from the existing initiatives in the health sector committed to by the Lao and Korean governments and the other members of the international donor community to shorten the odds. The impact evaluation team consulted the Lao government's own health-sector human resource development strategy and the existing commitments by international donor agencies and the Korean government to look for such leverage.

27. The consultation has led us to envision a two-stage approach for restructuring of Korea-funded health sector programs in Lao PDR and exploration of greater international coordination. The envisioned restructuring and the international coordination are anchored around the vehicle of the Education Development Center for the Health Professions (EDC/HP). The UHS' EDC/HP is designed by the UHS and Lao Ministry of Health to serve as the main platform for upgrading of the clinical education and training of health professionals in the country. The vertically realignment of the Korean programs could serve as the pediatrics module for the EDC/HP and provide the necessary pump-priming to call for larger international coordination to strengthen the vehicle.

28. The first stage foresees harmonization between Korean-funded programs, Dr LEE Jong-Wook Seoul Project and the Lao-Korea Friendship Children's Hospital in particular. The UHS can play the critical role in the vertical integration by selecting for future Dr LEE Jong-Wook–Seoul Project batches key faculty personnel to be deployed at the new Children's Hospital upon their return from their stint at the SNU College of Medicine. The SNUMC could reorient its program to emphasize the pediatrics component, and augment its current engagement by sending faculty members to the UHS to assist the returning faculty members and coordinate the initial development efforts at the Children's

Hospital as a genuine teaching hospital. As well, the SNUMC might want to consider expansion of the Dr LEE Jong-Wook–Seoul Project into a two-year, degree program. The KOFIH (sponsoring Dr LEE Jong-Wook–Seoul Project) and the KOICA (sponsoring the Friendship Children's Hospital) could help with efforts to facilitate the coordinated development of the integrated program into a future pediatrics module of the EDC/HP, which might include some additional funding support to beef up the clinical training facilities and equipments at the new hospital. In addition, the new Children's hospital should look for ways to take advantage of the results from the Dr LEE Jong-Wook–Seoul Project as it implements the new re-training program with the new teaching hospital serving as the training base. Notably, KOLAO, the leading private-sector business group in Lao PDR, run by an expatriate Korean businessman, has shown interest in provision of resources to augment funding gaps that might emerge even after combined commitments from governmental and international donor agencies.

29. The second stage envisions channeling international donor community's engagements for the capacity building and the human resource development in the healthcare sector. The EDC/HP can serve as the resource vehicle to mobilize the integrated efforts. Both the Lao Ministry of Health and the UHS on the one hand, and the international donor community recognize the need for investments in these areas for sustained development of the health sector in line with the Lao Government's long-term strategic plan. And there have been international engagements indeed for the purpose. For instance, the Canadian government recently helped the UHS with a curriculum overhaul. Even though the UHS-Seoul Jong Wook Lee is the largest of its kind in the history of the UHS, there have been numerous faculty exchange programs intended to help with faculty capacity building. Our sense is that these efforts have been too little, and all too scattered, to enable the UHS to mobilize its internal resources for a sustained, long-term, strategic efforts for fundamental institutional transformation. The EDC/HP was launched precisely to overcome this problem by serving as the vehicle for effective coordination of internal as well as international engagements for upgrading of clinical training and education at the UHS.

30. Our recommendation is for a functional division of labor among concerned Lao and international agencies. The Korean-funded programs, including the Dr LEE Jong-Wook–

Seoul Project and the Lao-Korea Friendship Children's Hospital, could be realigned to serve as the pediatrics module at the EDC/HP. Japan might be able to contribute another module or modules in obstetrics/gynecology through adaptation of the JICA-provided Settatirath Hospital and its own assortment of training programs.

31. The KDI School's Impact Evaluation Lab collaborated with the Lao Ministry of Health, the UHS, and the WHO Vientiane office informally to seek counsel from the international agencies whose shared vision and institutional commitments would be essential to realize the ultimate strategic goals. The efforts took the form of an international workshop in Vientiane on September 6, 2011. To facilitate the preliminary, international consultation process, the Lao Ministry of Health and KDI School's Development Lab worked with the Lao government's NAPPA (National Academy for Politics and Public Administration) to jointly organize the international workshop. The workshop invited all the major participants in the SWC steering committee for international healthcare cooperation coordination in Lao PDR as well as Lao and Korean agencies involved in the programs. Among the participants, the local representatives of the international agencies such as the World Bank and the ADB were enthusiastic in their responses. JICA representatives endorsed the blueprint in principle, and requested Korean agencies' continued efforts to push the agenda through the mechanism of the SWC in the coming days.

32. The second-stage agenda, if pursued at all, should be owned by the Lao Ministry of Health and the UHS, and should be ideally taken up by the SWC steering committee in Vientiane for coordination of international development cooperation programs in the healthcare sector. KOFIH and KOICA, at the same time, might be able to assist the Lao ministry and agencies in the pursuit of the agenda.

33. The authors of this report feel cautiously optimistic that the ongoing efforts will help the Korean funded programs better attain the principles for aid effectiveness, such as ownership, alignment, and harmonization. First, the harmonization efforts are being driven by the Lao government and the UHS. Capacity building would add to the momentum for strengthening of Lao ownership in health sector development cooperation in the future. Second, individual donor agencies' capacity building programs would contribute to the EDC/HP, the key resource mechanism for health sector capacity building as conceived by the Lao government for the attainment of its own health personnel development strategy.

Third, the blueprint and the sector-wide coordination mechanism would facilitate engagement of potential partners in functional division of labor for efficient and effective cooperation. Focus on results and joint accountability are of course the other two foundation principles in the Paris Declaration for aid effectiveness. We are aware that the long results chain presents a steep challenge for monitoring and evaluation of a training-of-the trainers program like Seoul-LJW-UHS/EDC program. KDI School's Development Lab is currently working with the UHS and the SNUMC to assess the impact of the UHS-Seoul LJW Project on learning outcomes of the UHS medical students, and is consulting the Lao Ministry of Health to explore possibilities for longer-term impact assessment further down the results chain.

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Chapter I
General Introduction

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General Introduction

1. Backgrounds for the Dr LEE Jong-Wook Seoul Project

The Dr LEE Jong-Wook–Seoul Project in Lao PDR is an ambitious development cooperation initiative funded by the Korea Foundation for International Healthcare (KOFIH), launched in 2010. In the project, the Lao University of Health Sciences (UHS) and the Seoul National University's College of Medicine (SNUMC) are collaborating for the capacity upgrading on the part of the UHS faculty members in medical education. (See annex 1-1 attached to the end of this chapter for a detailed description of the Project) The ultimate objective of the project is to contribute to the improvement of health status of Lao people. The project is based on the premise that upgrading of clinical education and training of the future health professionals represents a vital channel through which the ultimate goal will be attained in a sustainable manner, the developmental process owned by the Lao professionals.

Hope is running high for the success of the project both in Korea and Lao PDR. The project is inspired by, and modeled after, the Minnesota Project that is famous in Korea for the transformative impact it reputedly had on the modernization of the higher education in Korea in the aftermath of the Korean War. Under the aegis of the International Cooperation Agency (ICA), the University of Minnesota in the US and the Seoul National University in Korea teamed up. The Minnesota Project focused on curriculum modernization and upgrading of teaching practices in three key areas: agriculture, engineering, and most important for the purpose of this report, medical education. The College of Medicine at the SNU cherishes the memory of the help

that it obtained from the University of Minnesota. The top management and the whole faculty are committed to the successful implementation of the Dr LEE Jong-Wook–Seoul Project in the belief that it could thus pay back part of the institutional debt that they feel they owe to the international community. Several leading news media in Korea have reported on the launch and the progress of the project. There is already a plan to get the project replicated in some other developing countries, anticipating success of the Dr LEE Jong-Wook–Seoul Project. On the other side, expectations are high both at the Lao UHS and also at the Lao Ministry of Health, the government ministry overseeing the operation of the UHS. Cooperation between the partnering institutions in Lao PDR and Korea has been enthusiastic to overcome tremendous challenges.

Despite such high hopes, it is not obvious that the Dr LEE Jong-Wook–Seoul Project will deliver the anticipated outcomes. To begin with, one might reasonably entertain some skepticism on whether the erstwhile Minnesota Project was itself really as successful as reputed to be. As reviewed in Chapter IV of this report, archival research does reveal that participants in the medical education component of the Minnesota Project, on both sides of the Pacific Ocean, were indeed positive that the learning outcomes of the faculty trainees from the SNU College of Medicine and the later institutional transformation of the SNU's College of Medicine were remarkable. Understandably, however, there was no attempt at a rigorous modern-style impact evaluation of the project in the course of the project's lifecycle. The glowing reports are based mostly on qualitative assessments carried out by participants and observers. One ironic piece of evidence, however, establishes how successful the Minnesota Project was in the transformation of medical education in Korea: the huge upsurge in the number of Korean physicians emigrating to practice in the US after passing the licensing exams there. The remarkable increase was a temporary phenomenon enabled by the combination of the dearth of gainful employment opportunities for the newly trained medical doctors in Korea and the increase in the demand for physicians in the US due to the escalation of the war in Vietnam. The brain-drain eventually dwindled to a trickle with the economic development of Korea and the expansion of the national health insurance in the country. It is beyond doubt, however, that such an upsurge would have been unthinkable in the absence of the remarkable development of medical education in Korea benefiting from the Minnesota Project.

Even if one accepts the success of the Minnesota Project, one may still be skeptical that difficulties lurking at every stage of the long results chain might endanger the successful

implementation of the project's modern adaptation in the partnership between Korea and Lao PDR. How fruitful will the intellectual collaboration be between the SNU and the UHS faculty members for the learning outcomes of the latter? Language barriers and differences in clinical practice conditions between the two countries should be substantial. How much of the learning would be successfully transmitted to the students at the UHS once the UHS participants return to Vientiane? As noted in this report, physical and institutional infrastructure at the UHS could use a major upgrading. (See annexes 1-2 and 1-3 attached to the end of this chapter) Limited job opportunities in the future once they graduate from the medical school might distract the students' attention and harm their motivation. How much of the learning, to the extent it does get transmitted, absorbed by the students, would be put to practical use in clinical practice? As things stand in Lao PDR, it is only about 50% of the graduating class from the UHS that get jobs, and of the jobs only 70% are directly related to the provision of healthcare services. Retention of the healthcare professionals in the sector remains a severe challenge due to relatively low compensation and harsh working conditions. In view of these facts, would an engagement with practicing professionals in the field make a better investment sense, compared to a pre-service training intervention such as the Dr LEE Jong-Wook–Seoul Project?

The challenges are steep indeed. Yet, most of these conditions, if not all, should have been familiar to an external observer of the Korean medical education and practice scene back in the 1950s and 60s, or during the years of the Minnesota Project. That the Minnesota Project eventually proved successful gives us a ground for cautious optimism. The very real hurdles mean at the same time that careful monitoring and evaluation of the project in progress as well as flexible adaptation based on the real-time feedbacks will be critical to raise the likelihood of satisfactory implementation of the project.

2. Outline of the Evaluation Framework and the Interim Report

The Impact Evaluation Lab at the KDI School of Public Policy and Management is collaborating with the partnering institutions and agencies both in Lao PDR and Korea, the UHS, the Lao Ministry of Health, the SNU College of Medicine, and the KOFIH to contribute to the institutions' own efforts at monitoring and evaluation. This volume is the first-year interim

report of the collaborative efforts at assessment.

The collaboration has two main objectives: impact evaluation and real-time feedback to the partner institutions and agencies. The three-year timeframe for the collaboration renders impracticable tracing of the project's impact transmission down to the eventual outcome goal: improvement of the health status of the Lao people. In view of the limitation, the impact evaluation team decided to focus on a series of intermediate outcome measures. They are: learning outcomes for the UHS faculty members participating in the one-year exchange program at the SNU College of Medicine; the learning outcomes of the UHS students; and finally, improvements in the clinical practices of the young physicians upon their graduation from the UHS. The first of these is to be monitored and assessed by the UHS and the SNU College of Medicine.

The KDI School's Impact Evaluation Lab is to focus on the latter two measures. For the students' learning outcome measurement, the evaluation team has decided to employ the test battery developed and maintained by the Medical Education Assessment Consortium (MEAC) of Korea. The questions in the test, designed to assess the test-takers' mastery of medical science and clinical knowledge, have been translated into Lao. For measurement of young physicians' clinical practices, we have consulted the UHS and the Lao Ministry of Health and found out that the Lao ministry's Disease Treatment Committee (DTC) had developed two sets of indicators: the Standard Treatment Guidelines (STGs) and the Reasonable Use of Drugs (RUD) guidelines. The Lao ministry agreed to revive collection of individual physicians' STG and RUD data at the nation's major hospitals for the purpose of this impact evaluation. Baseline studies have been carried out to collect information on the UHS student learning and physician practices in late 2011. And the data collection will be carried out in two more rounds later this year and also in 2013.

Thus the impact evaluation strategy will compare the changes in the outcome measures over the years between the treatment and the control groups. If there is endogenous selection of subjects into the two groups, then the evaluation results may be subject to bias in one way or other. The impact evaluation team is in the process of consulting the UHS management to see whether randomized assignment of subjects (that is, students) into the treatment and the control groups is feasible.

Obviously, the results from the full impact evaluation exercise will be made available only in

two years' time. But the team members felt that we already have valuable information to share with the partnering institutions and agencies as well as the wider development community within Korea and without, some of which is demanding publication as soon as possible for real-time feedbacks in the spirit of real-time impact evaluation. Apart from the layout of the evaluation designs, this interim report will present some of the salient findings from the baseline studies. Chapter II lays out the overall impact evaluation framework and strategy and discusses the DTC baseline study results. The UHS students' test results are discussed in Chapter III. Chapters IV and V aim at providing some immediately actionable feedbacks, based on a comparative case study of the Minnesota Project in Korea back in the 1950s and the Dr LEE Jong-Wook–Seoul Project (Chapter IV), and a review of the existing Lao government policy for the development of health personnel as well as other health-sector programs funded by Korea and the other members of the international development community (Chapter V). Finally, the chapter provides three annexes on the specific details of the Dr LEE Jong-Wook–Seoul Project (annex 1-1); on the composition of the faculties, the curricula, and the physical learning environment at the UHS (annex 1-2); and the results of the interviews that we have carried out with select groups of UHS students and faculty members (annex 1-3).

Annex 1-1: Description of Dr LEE Jong-Wook–Seoul Project

Under the Dr LEE Jong-Wook–Seoul Project, professors from the UHS are invited to receive a training program for one year at the SNU College of Medicine. The first group of trainees was selected by the UHS, and started the program in November of 2010. The group includes five professors from basic medicine and additional three from clinical medicine, and two of the latter subgroup participated in the program for six months. The fields of specialization of the trainees are presented in <Table A1-1>. The first batch trainees are expected to return to UHS in November 2011 and will receive fund for purchasing equipments and materials for research and education. [1]

<Table A1-1> Fields of Specialization of the Trainees in 2010-2011 under the Dr LEE Jong-Wook–Seoul Project

Category	Field of Specialization	2010-2011	2011-2012
Basic Medicine	Anatomy	1	1
	Microbiology	1	
	Pathology	1	
	Pharmacology	1	
	Physiology	1	
	Biostatistics		1
	Biochemistry		1

1 Each trainee is expected to receive a grant of 30 million won (around US$ 25,700) upon their completion of the program. The trainees who participated in the program for six months are expected to receive 15 million won (around US$ 12,800).

Category	Field of Specialization	2010-2011	2011-2012
Clinical Medicine	Pediatrics - Hematology	1	
	Pediatrics - Neonatology		1
	Obstetrics and Gynecology	1 (short-term)	1
	Internal Secretion	1 (short-term)	
	Internal Medicine - Hematology		1
	Internal Medicine - Endocrinology		1
	Internal Medicine – Infectious Diseases		1
	Public Health		1
Total		8	9

Note: 'Short-term' means the participation for six months.

The process of selecting the trainees for the second year was undertaken in May 2011. Nine out of 15 applicants were selected as candidates after the interviews by professors from the SNU College of Medicine. They are currently taking English and Koran Language courses in Vientiane, and only seven of them will be invited based on the performance. The preparatory language courses are an additional feature of the Project, introduced after the SNUMC found out some significant language barriers among the first-year training participants.

The planned duration of the project is total of nine years, but the fund has been secured only for the first three years at the current stage. The finance for the rest of the planned duration will depend on the evaluation of the project for the first three years.

It should be noted that the Dr LEE Jong-Wook–Seoul Project is modeled after the Minnesota Project as mentioned earlier. The inspiration means that the goals sought after are ambitious indeed. The Project envisions formation of a critical mass of competent and committed change agents for the wholesale institutional transformation within the UHS and in the medical profession in general. A similar change is perceived to have happened at the SNUMC as a result

of the Minnesota Project. For the purpose, the participants are supposed to be selected in part based on their motivation and commitment. A faculty consensus workshop was organized at the UHS in May 2011, where around 40 faculty members of UHS discussed the fundamental problems at UHS and the goal of the Dr LEE Jong-Wook–Seoul Project. As part of the project, one professor in SNU College of Medicine will be sent to UHS to oversee the teaching and research of the trainees in early 2012.

Annex 1-2: UHS Education System: Composition of Faculties, Curricula, and Physical Environment

The University of Health Sciences (UHS) is the sole institution of higher learning in medical education in Lao PDR, and is a part of the Lao Ministry of Health. Before the reorganization in May 2007, the whole of the UHS was one faculty at the National University of Laos under the Ministry of Education.

Currently the university has seven faculties, or divisions, including the Faculty of Basic Sciences and the Faculty of Medicine, the mainstay of medical education at the UHS. It should be noted that the Dr LEE Jong-Wook–Seoul Project is mainly partnering with these two Faculties, even though the future collaboration between the SNUMC and the UHS might involve some other Faculties as well.

The UHS is a sprawling organization, consisting of many Faculties and a fairly large student body. For the 2009-2010 academic year, total student enrollment of students at the UHS stood at 4,706 and the number of faculty members was 215. The durations of the degree programs, and the sizes of student body and the faculty vary across the constituent Faculties. The details are presented in <Table A1-2>.

It is noteworthy that the number of incoming students increased rapidly in the recent years due to policy considerations of the government. For the academic year of 2010-2011, the class size of 6th-year students in Faculty of Medicine is 161, whereas that of 1st-year students in Faculty of Basic Science is around 400, for instance. The upsurge in the recent years in student enrollments explains why student enrollment figures are at odds with the student intake per year times the duration of the program in the table.

<Table A1-2> Number of Students and Professors and Other Program Details by Faculty at the UHS

Faculty	Length of training	Degree/ Diploma	Student Intake per Year	Student Enrollments (2009-2010)	Number of Professors
Basic Sciences	3 years or 1		~ 600	1,151	29
Medicine	6 years	Bachelor	~ 300	787	26
Dentistry	6 years	Bachelor	~ 100	558	47
Pharmacy	5 years	Bachelor	~ 100	734	28
Nursing	3 years	Higher level diploma	~ 100	692	28
Medical Technology	3 years	Mid-level diploma	~ 150	566	44
Post-graduate	1.5 or 3 years	Master Residency	~ 6-15	218	13
Total				4,706	215

Notes: 1) The length of basic sciences training varies for different faculties. For instance, the basic sciences education for those bound for the Faculty of Medicine run for 3 years, while the duration of the basic sciences program for pharmacy and dentistry students is 1 year. 2) Post-graduate study is responsible for training masters in public health and residency program.
Source: UHS

The UHS developed and adopted a new integrated curriculum in 2002 with the support from the Canadian government. The new curriculum aims at training doctors to be capable of "working in hospitals or any other community facilities in Laos, with adequate knowledge, skills and attitudes necessary to improve the health of people".

Focusing on the Faculty of Medicine, <Table A1-3> presents the outlines of the curriculum. The structure starts off with one year in foundation studies, and two additional years in preclinical sciences. The preparatory phase, accommodated by the Faculty of Basic Sciences, is then followed up with two years of study in clinical sciences, to be topped by one year of clinical practice. The overall structure is similar to those adopted by schools in developed countries. However, interview results with faculty members and students reveal that the curriculum is not effectively implemented due to many capacity constraints, both physical and institutional in nature.

<Table A1-3> Curriculum for the UHS students in the Faculty of Medicine

1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Lao language and culture	Introduction to medical science	Gastro-intestinal system	Basic research methodology	Health administration	Practice in community
Mathematics	Policy	Musculo-skeletal-intergumenttary system	Clinical skill Part I	Muscle-osteo-dermatology	Practice in hospital
Medical Chemistry	Foreign language	Nervous system I, II	General clinical presentation	Neurology	Practice in Internal medicine
Physical Education	Blood and Immune system	Policy	Hematology and Immunology	Endocrinology	Practice in Surgery
Environment study	Cardio-vascular system	Foreign language	Cardiology	Foreign language	Practice in gyneco-obstetrics
Foreign language	Respiratory system	Endocrine and metabolism	Foreign language	Reproductive system	Practice in Pediatrics
Basic statistics	Renal and Electrolyte system	Reproductive system	Pneumology	Mental health	Practice in emergency care
Biology		Nursing skills	Urology	Human development	Thesis
Biophysics	Foreign language	Nursing practice in hospital	Gastro-enterology	Field practice in community medicine	Final State Exam
General Psychology		French	Foreign language	Foreign language	
Policy					

Source: UHS

<Table A1-4> compares the curricula at the UHS and the SNUMC. Although the curriculum of UHS includes fewer courses in laboratory and in subspecialty disciplines than that of SNU, the basic structure of the integrated system is quite comparable.

Under the current curriculum, 4th-year students receive hospital training in every morning, and take coursework in the afternoon. Likewise 5th-year students spend every morning in the clinical training in subspecialty areas, and work on the in-field community practice for a month. In the 6th year, students stay at hospital all day, and are supposed to submit a final project (thesis) and to pass the Objective Structured Clinical Examination (OSCE) and a Comprehensive Exam in order to graduate. The comprehensive exam consists of 200 multiple-choice questions. In theory, passing these exams is a requirement; in practice, however, interview results reveal that the requirement is bypassed.

<Table A1-4> Comparison of Curricula in the UHS and the SNUMC (2010)

Year	UHS	SNU
1	Mathematics Physics Chemistry Biology Basic Statistics General Psychology Policy 1 Lao Language and Cultural Foreign Language 1, 2 Environment Lao Study 1, 2	Calculus for Life Science 1, 2 Calculus 1, 2 Physics & Lab. 1, 2 Chemistry & Lab. 1, 2 (or Biology & Lab. 1, 2) Korean College English 1
2	Introduction to Medical Science Blood and Immune system Cardio-vascular system Respiratory system Renal and Electrolyte system Policy Foreign language	Introduction to Medicine Basic Organic Chemistry & Lab. Basic Medical Statistics and Lab. Genetics New Technologies for Medicine Introduction to Chemical Biology Cellular and Molecular Biology College English 2 Electives by Area

Year	UHS	SNU
3	Gastro-Intestinal system Musculo-Skeletal-Intergumenttary system Nervous System 1, 2 Endocrine and Metabolism Reproductive System 1, 2 Urinary system Nursing skills Nursing Practice in hospital Policy French Foreign language Social Scince Community Development	Anatomy & Lab. Histology & Lab. Physiology & Lab. Biochemistry & Lab. Neuroanatomy & Lab. Embryology & Lab. Neurophysiology & Lab. Pathology & Lab. Microbiology & Lab. Patient-Doctor-Society 1, 2 Basic Immunology Preventive Medicine & Lab. Biomedical Engineering
4	Clinical Skill 1(History taking, Physical exam) General Clinical Presentation (Fever, Sore throat, Weight loss) Research Methodology Respiratory System Hematology-Immunology Cardiovascular System Gastro-Intestinal System Renal System Social Sciences French Practice in Internal Medicine Practice in Surgery Practice in Pediatrics Practice in OB-GYN Practice in District Hospital	Pharmacology & Lab. Parasitology & Lab. Clinical Immunology Oncology Neurosciences Nephrology and Urology Hematology Endocrinology Circulatory System Respiratory System Gastroenterology Medical Genetics Infectious Disease Patient-Doctor-Society 3, 4

Year	UHS	SNU
5	Endocrine System Public Health Psychiatry Reproductive System Muscle-Osteo-Dermatology Nervous System Human Developments Field Practice in Community Medicine Social Sciences French Practice in Ophthalmology Practice in Dermatology Practice in Otolaryngology(ENT) Practice in Radiology Practice in Psychiatry Practice in Rehabilitation Practice in Laboratory Practice in Anesthesiology-Resuscitation	Internal Medicine & Clerkship Surgery & Clerkship Obstetrics & Gynecology(OB-GYN) and Clerkship Pediatrics & Clerkship Psychiatry & Clerkship Orthopedic Surgery & Clerkship Radiology & Clerkship Nuclear Medicine & Clerkship Clinical Reasoning Neurology & Clerkship Laboratory Medicine Emergency Medicine & Clerkship Patient-Doctor-Society 5
6	Management of Hospital Social Sciences Final Project(Thesis) Practice in Internal Medicine Practice in Surgery Practice in Pediatrics Practice in OB-GYN OSCE Comprehensive Exam	Anesthesiology and Pain Medicine Dermatology Thoracic Surgery Neurosurgery Urology Otolaryngology Ophthalmology Plastic Surgery Laboratory Medicine Rehabilitation Medicine Radiation Oncology Community Medicine Family Medicine Advanced Clinical Medicine Research in Medicine Clinical Performance Training and Examination Occupational and Environmental Medicine Critical Care Medicine New Horizons in Medicine Integrated Clinical Medicine Patient-Doctor-Society 6

Source: UHS and SNUMC.

Now we turn to the physical and institutional infrastructure for learning at the UHS. The current level of educational environment at the UHS could be described as minimal and could use a major upgrading. The comparison between UHS and SNU on basic aspects is striking. There are 55 professors at the Faculties of Basic Science and Medicine combined at the UHS, whereas there are 503 professors at the College of Medicine at SNU. The number of students per professor at UHS at about 39 is much larger than that at the SNUMC, where the student teacher ratio is 1.3. The UHS is short of classrooms, and the existing ones are not adequate for large classes since they have flat floor. Regarding the laboratories, there exist a few laboratories, but the equipment is limited and the size is too small for the typical class size. The library has a collection of around 4,000 books in different languages, and can accommodate only 50 students in the reference room.

<Table A1-5> Educational Environment at UHS and SNUMC in comparison (2011)

Category	UHS Faculty of Basic Science Faculty of Medicine	SNU College of Medicine
Number of Professors	55	503
Number of Students	1st year: around 400 2nd year: around 400 3rd year: around 500 4th year: 408 5th year: 256 6th year: 161	1st year: 164 2nd year: 162 3rd year: 161 4th year: 148
Classroom	There are few large classrooms with ascending floor.	There are 7 large classrooms that can accommodate more than 150 people and have ascending floor.
Laboratory	There exist a few laboratories, but the equipment is limited and the size is small.	There are in total 32 laboratories: MDL: 28 Clinical Skill Center: 4 OSCE: 3 CPX: 1
Library	Collection: around 4,000 books Accommodation: around 50	Collection: 200,950 books It provides facilities for browsing thesis and a large collection of academic journals. Accommodation: 566

Source: Department of Medical Education, College of Medicine, SNU

Annex 1-3: Interview Results with UHS Students and Teaching Staff

This note summarizes the results of on-site interviews conducted with the students and teaching staff, separately, of the University of Health Sciences (UHS) of Lao PDR in the UHS campus on May 17, 2011. The interviews were arranged with the help of the UHS and were carried out by the KDI School Impact Evaluation team (Prof. Lee, Kye Woo for the whole interview time; Prof. Kim, Jung Ho, Ms. Choi, Eun Ji, and Mr. Bounmy Inthakesone for parts of the interviews).

The purpose of the interviews was to identify some weaknesses of the UHS to be improved with the help of foreign assistance, to help design the assessment strategy and to provide the basis for the real-time feedbacks to the partnering institutions.

The interviews were conducted with randomly selected group of 8 students divided into two groups and 4 faculty members divided into two groups (two junior and two senior members).

The subjects covered in the interviews include various aspects of internal and external conditions in and around the UHS: student body, tuition and fees, teaching staff, curriculum, classroom facilities, learning materials, library, computer facilities, job prospects for graduates, compensation to medical doctors and their working conditions and other barriers to quality education.

I. Interview with 4th Year Students (a total of 8 students divided into two groups)

Student Body

- About 45% of students are regular students.
- Remaining 55% of students are special students.
- Regular students are selected on the basis of the achievement at the entrance exam.
- Besides the difference in the level of tuition and fees, there is no difference in the status of students between the regular and special students.

Tuition and Fees

- Regular students receive scholarships and therefore pay only 175,000 Kip per year. (US$ = About 10,000 Kip)

- Special students do not receive scholarships and therefore pay about 1.2 million Kip per year for tuition and fees, i.e., special students pay about 7 times more than regular students.

Teaching Staff

- They assess that the quality of professors is satisfactory; however, the quality of basic science courses is low since some professors are teaching courses in which they have not specialized. Before worries about the quality of classes, the more urgent concern is over the short supply of professors in both basic sciences and specialized courses.

- Since full time faculty members are in short supply, the UHS hire many part-time lecturers, especially in special courses. As a result, class schedule is not fixed but subject to abrupt changes, depending on the convenience of the lecturers. Moreover, some courses, especially the specialized courses, are often offered as a team teaching sequence. Class schedule changes are more frequent in these courses taught by teams of faculty members.

- The quality of lessons in clinical practice needs improvement. UHS students take practice sessions during the 5th year of their study, and on a full-time basis, during the 6th year. Students are assigned by the school to one of the four teaching hospitals in Vientiane, and to medical doctors of the hospitals as their clinical practice professor. However, the quality of the hospital service is poor in general, and it is hard for students to learn quality practice. The number of students assigned to each professor is too large for effective learning (about 32 students are assigned to one professor). Sometimes, the professors are not available, and therefore students just observe patients. Students prefer Mahosot Hospital and Mother and Child Hospital among the four teaching hospitals since the service quality is perceived to be higher.

Classroom Facilities

- The number of classroom is too few compared with the number of students and subjects to be taught. The student body increased sharply over the recent years.

Curriculum

- The curriculum should be improved. One particular concern was the sequencing of the courses. Students believe that some subjects are offered in the third year that had better be taught earlier during the second year, for instance.

Learning Materials

- The number and quality of learning materials is limited. Few books are available in the library. Most books including textbooks are in French, followed by Thai and then English. French is taken by most students in the University; however, their level of proficiency is too low to study the French books, which are also of the old vintage. Both Thai and English books are relatively old and too few. They have no problems in reading Thai books. Although their English level is limited, they can read it with the help of internet or dictionaries. They wish to have more English books.

Library

- Library hours are severely limited: 1 or 2 hours in the morning and afternoon, respectively. The books are arranged on shelves in a rather haphazard way so that it is often difficult to locate them.

Computer Facilities

- Computer facilities are too limited, and internet access is not available for general search or for access to data bases on school computers. Only e-mail services are available.

Skill Labs

- Labs are poorly equipped and too small to be used by each group of students. Labs are not available for the 1st Year students' use.

- The number and type of model bodies (mannequin) for teaching/learning are too few.

Job Prospects

- At present, they all know that only about 50% of the graduates will get medical jobs with the government-run hospitals.

- The other 50% will have to get jobs with non-governmental organizations, such as NGOs, private enterprises or informal businesses. They understand that about 30% of graduates are working with NGOs.

- They mostly learned the general picture of the job prospects only when they reached 3rd year of the medical school.

- Although most students learn about the uncertain job prospects by the 3rd year of the UHS, they do not drop out, since they have already invested in the UHS and believe that other opportunities might be available. Moreover, they are personally committed to helping and advising on the health of other people and love medical subjects.

- The medical jobs with the government hospitals start at the beginning on a probation basis and will become regular official jobs only when vacancies emerge.

- Vacancies are made available normally in 1-3 years, but in some hospitals it might take up to 7 years, especially in the more popular urban hospitals.

- Most students want to work as medical doctors with government hospitals since the jobs are secure and provide generous fringe benefits.

- As an alternative to medical careers with government hospitals, doctors take private clinic jobs since they remunerate better, require high competence, and provide better health services.

- Private clinic jobs cannot be an option right after the graduation from the UHS, since one has to serve with government hospitals at least 3 years in rural areas and 5 years in urban areas before opening up a private clinic, and there are no private hospitals. Private clinical practice by government hospital doctors is allowed only after the official hospital hours (9:00-18:00).

Compensations for Medical Doctors

- The starting salary of contracted medical doctors with government hospitals is between 300,000-400,000 Kip per month. This means that even special students who pay 1.2 million Kip per year can recover the tuition and fees in less than three years and explains partly why the competition for the entrance to the UHS is keen.

- However, the starting salary for the medical doctor is lower than that for other governmental officials since the starting medical doctors are not regular government officials, but contracted workers.

- Most NGOs pay much better than the government.

Barriers to Quality Education

- In the order of importance, students listed the major barriers to quality education as follows: number of classrooms, availability of learning materials including library facilities, and number and quality of professors, and poor arrangements for teaching practice.

II. Interviews with Faculty Members (8 faculty members in two groups)

- The major topic of the interviews was barriers to quality education in the UHS. The interviews were conducted in two sessions: one session with four junior faculty members without administrative responsibilities, and another session with four senior faculty members with administrative responsibilities, separately. However, the results of the interviews are fairly similar. The only major difference where they locate the major challenge among the same perceived set of barriers to quality education. Therefore, this note combines the interview results of the two sessions.

Difference in Opinions between Junior and Senior Professors

- In terms of importance and seriousness, the junior professors emphasized the issues concerning the teaching staff, followed by paucity of classrooms, and then inadequate supply teaching/learning materials. However, the senior professors with administrative responsibilities emphasized the issues of classrooms, followed by teaching/learning

materials, and only then issues related to the professors. However, the general shape of the problems associated with each issue was more or less the same.

Learning Facilities

- Imbalance between the size of the student body and the number of classrooms and hospital spaces is so serious that the quality of education is severely compromised. For example, currently about 300 students are enrolled in the 4th year. However, available classrooms are only two: about 200 students are accommodated in one room with an instructor, but remaining 100 students have to sit in another room without a teacher with only the audio facility. The same course cannot be offered in several sections, since both the available classrooms and teaching staff are limited. The 5th year students are accommodated in rented spaces of hospitals (at the cost of 2 million Kip per month).

- For the 5th and 6th year students, clinical courses are offered in the hospitals. However, training spaces including clinical labs are heavily crowded since other program students, such as postgraduate students, are also using the same hospitals. Each group is composed of more than 30 students per teacher. Next year, it will be 50 students per group. The size of student body increases faster than the number of patients. Recently, therefore, provincial hospitals are being used for clinical training with 20 students per group. However, the quality of training is uneven.

- The number of students increased recently. The number of students enrolled in the 4th year was 200 in 2009; 250 in 2010; and 300 students in 2011. The optimum number for the current facilities is considered to be about 150 students. New entrants to the School in 2011 were 160 students. Perhaps, the size of the student body is getting normalized.

Teaching Staff

- Teaching staff is in short supply. Especially in the basic science fields of the medical science faculty and clinical teaching fields at hospitals, more specialists should be hired. While the number of students has increased, the number of teaching staff has declined. There are a number of basic science volunteer teachers, who work for the UHS, expecting that vacant positions will be made available in the future. Some volunteer teachers have worked

without pay for several years.

- The number of clinical teaching staff is in short supply, too. Although both hospitals and the UHS belong to the Ministry of Health organizationally, they have difficulty in communication and cooperation. The UHS cannot force the hospitals to assign more doctors for clinical teaching.

- For hiring both regular faculty members and volunteer teachers, there are no clearly established procedures for recruitment. Hiring is done on a non-open and non-competitive basis.

- Promotion processes and criteria are clearly spelled out; however, the actual practices and operations are ambiguous.

- The quality of faculty members needs to be improved. In particular, faculty members responsible for basic sciences and clinical teaching courses need to improve their teaching methods and techniques to compensate for their short period of teaching experience.

- Teacher evaluation and promotion systems need to be reviewed, and adherence to the established criteria and processes should be enforced more rigorously.

- There is no quality control of students' learning. Students are promoted automatically. There is a graduation exam system, but all students graduate. In fact, only about 70% of students passed the graduation exam last year; however, the MOH allowed all students to graduate with equal qualification. Therefore, graduation examination results served no useful purpose.

Teaching Materials

- Integrated curriculum was adopted in 2004. However, there is weak coordination and cooperation between faculties. The same or similar courses are offered by each faculty separately, and taking courses across faculties are not allowed. There are 7 faculties in the UHS: besides the faculties for post-graduate study, Medical Science, and Basic Sciences, there are Faculties of Nurses (3 year, BA); Technology (3 years, non BA); Pharmacy (3 year, BA); and Dentistry (6 years, BA). Furthermore, there are three separate curricula tracks for nurses: technical nurse, midwife, and community service. They could share the courses,

teaching materials, and faculty members across the boundaries of faculties in theory; however, there is no such practice yet.

- Clinical teaching at hospitals is of poor quality. Too few skill labs are available to be used by the increasing number of students.

- Access to library, internet, and books is extremely limited.

- Labs, model human bodies, and other teaching materials are limited.

How can we evaluate the Dr LEE Jong-Wook–Seoul's Impact?

- The ultimate test would be an improvement in the diagnostic procedures of the UHS graduates.

Chapter II

Real-Time Impact Evaluation

KDI SCHOOL
KDI School of Public Policy and Management

Real-Time Impact Evaluation

1. Introduction

The main purpose of this chapter is to outline the overall scheme of a real time evaluation exercise and lay out the design of baseline studies of the Dr LEE Jong-Wook–Seoul Project in Lao PDR, and to present some of the initial findings from the baseline study focused on the clinical practices by young physicians, or recent graduates from the UHS. The Dr LEE Jong-Wook–Seoul Project was launched in 2010 and is scheduled to be completed in 2013 with the possibility of continuation afterward. Conventionally an evaluation study is an ex-post evaluation exercise after the completion of a project. However, one salient feature of this evaluation study is that the evaluation exercise is being carried out in parallel with the implementation of the project.

There are several developmental and environmental imperatives that force evaluators to take a real time evaluation approach (Thomas 2011, Lee 2011). Firstly, multiple players are involved in development assistance. Besides the traditional OECD/DAC (Development Assistance Committee) members, rapidly increasing is the number of emerging bilateral donors and new international organizations, as well as numerous agencies in recipient countries. In addition, there have been an increasing number of development programs and projects financed by numerous donor agencies in a given developing country. These developments have inevitably made the causal chain more complex than before. Secondly, the rapid speed of changes in today's development world makes ex-post summative evaluations more likely to be irrelevant. Thirdly, today's evaluators face the multi-faceted and cross-cutting nature of emerging development

issues, such as climate change, pandemic diseases, and environmental degradation. The nature of these emerging issues also makes the causal chain more complex and broad, which poses new challenges for development evaluators. A traditional summative or ex-post evaluation would not help evaluators cope with the new development environment and make their evaluation results relevant to project staff.

A more effective solution to cope with the new challenges is to take a real time evaluation approach, which will go along with each stage of the whole project cycle starting from the project design to preparation and throughout the implementation stages, providing pertinent feedbacks to project staff in a timely manner. For this reason, this evaluation study of the Dr LEE Jong-Wook–Seoul Project will take a real time evaluation approach.

This chapter is laid out as follows. We start with a description of the overall design of the real time impact evaluation study together with its methodology and data. Three approaches are proposed for the methodology of this study. Then, the progress with the first two approaches is briefly discussed since the other evaluation team members provide a more in-depth treatment in separate chapters of this report. A more detailed description of the progress in the third approach is presented, followed by an analysis of the baseline data obtained in 2011. The paper concludes with a list of remaining tasks to be monitored and completed in the future.

2. The Content of the Impact Evaluation Study

The objectives of the real time impact evaluation are two-fold. The first objective is to provide feedbacks, as the project is being implemented, to the implementing agencies (UHS, Ministry of Health of Lao PDR, College of Medicine of the Seoul National University, and the Korea Foundation for International Health (KOFIH) of the Republic of Korea, the funding agency), regarding the progress of the project and the attainment of its intermediate outputs. On the basis of these feedbacks, the implementing agencies should be able to decide whether a modification of the project design is warranted or not during the implementation of the project.

The second major objective is to provide feedback to the project implementing agencies and policy makers of both governments regarding the attainment of the project objectives on the basis of the assessment of the project's final outputs and outcomes.

The project's final outcomes will be improvement of the health status of Lao people serviced by the graduates of the UHS, who are to be taught by the UHS faculty members trained in Korea under the project. Therefore, the assessment of the final outcome should be made through a comparison of the health status outcomes of Lao people with and without the project.

Measurement and assessment of the health status of Lao people can be made using their morbidity and mortality rates. However, this will require a long and extended time even after the termination of the project and will be completed much beyond the current contract for this impact evaluation study. Therefore, for this real time evaluation study, intermediate outcome measures will be used.

3. The Methodology and Data

For the real time evaluation study, this study will, first, assess the design of the Dr LEE Jong-Wook–Seoul Project against the policy and strategic statements of the Lao government and the need for calibration in the design. This method is consistent with the Alignment Principle of the Paris Declaration on Aid Effectiveness (OECD 2005). The Paris Declaration exhorts all donors to align their aid programs and projects with the development policy/strategy/plan of a recipient developing country. The Lao government elaborated its development policies for all sectors in its Poverty Reduction Strategy Paper: National Socio-Economic Development Plan: 2011-15 (Committee for Planning and Investment 2008) and Seventh Five-Year Health Sector Development Plan: 2011-2015 (Ministry of Health 2010).

The second approach of this study is to assess the appropriateness of the design of the project given the aid activities of other donors for Lao PDR in the health sector. This approach is consistent with the Harmonization Principle of the Paris Declaration on Aid Effectiveness (OECD 2005). Many donors are active in Lao PDR, and therefore all donors active in the health sector formed a Sector-wide Coordination (SWC) mechanism, co-chaired by the vice minister

of Health and the government of Japan (represented by the ambassador). The SWC mechanism reviews existing aid activities for coordination and adjustment, and new initiatives of donors are expected to be submitted for the mechanism's considerations to best avoid possible overlapping and conflicts. Therefore, the Dr LEE Jong-Wook–Seoul Project should also be assessed against other donors' existing activities and new initiatives.

Results of the team members' explorations based on these two approaches will be presented and discussed in the final chapter of this report. To preview, our conclusion is that the project is well aligned with the Lao government's own strategy and policy. For harmonization, however, there is much room for improvement. The main thrust of Chapter V is to explore what should be done by the Korean (and also Lao) agencies to heighten effectiveness of the project through a more perspicacious harmonization with other donor-funded and Lao-initiated programs and policies.

A third and final approach of this study is to test several hypotheses for the purpose of assessing the effectiveness of the project. This approach is consistent with the Result-Based Aid Management Principle of the Paris Declaration (OECD 2005). The first hypothesis (H1) is whether the UHS students taught by the professors who were trained in Seoul under this project (the treatment group) attain a higher level of academic achievements than the rest of the UHS students (the control group). For this purpose, the two groups' academic achievements will be tested during their study at the UHS and at the time near their graduation from the UHS. The reason for this hypothesis test is the underlying assumption that the UHS graduates with a higher level of academic achievements would also provide a higher level of quality health services to patients. This assumption is testable and should also be tested since it provides the link between the first hypothesis and the second, which comes below.

The second hypothesis (H2) is whether the UHS graduates who were taught by the professors trained under this project (the treatment group) provide a higher level of quality health services than those who were not taught by the professors trained under the project (a control group). A fair comparison needs to make sure that both groups of graduates have the same years of practicing experience. For this purpose, those doctors who are approaching the end of their first year health service practice in central and provincial hospitals will be compared.

The third hypothesis (H3) is whether UHS graduates who were taught by the professors trained under this project provide a higher level of quality health services (the treatment group) than those

doctors who were not taught by the professors trained under this project, but have a longer period of on-the-job training and experience (the comparison group). For this purpose, those doctors who are at the end of their first, third, and fifth year health service practice in central and provincial hospitals will be tested. The purpose of this test (H3) is to compare the relative effectiveness of pre-service training provided by the professors trained under this project with that of on-the-job training or learning-by-doing provided by the central and provincial hospitals. The result of this test will help assess the desirability of continuing with the UHS-Seoul Jong Wook Lee type of projects in the future or with an alternative project design, especially a project placing more emphasis on the on-the-job training of practicing medical doctors, instead of pre-service training for future medical doctors. The literature indicates that on-the-job training or experience is often more effective than or as effective as formal, pre-service education in explaining wage differentials of workers (Mincer 1961, Lee 1982).

Investment in on-the-job training of practicing doctors might be more efficient in Lao PDR since only about half of the UHS graduates started working as government officials in the last ten years, and the other half undertook jobs unrelated to their health education. Moreover, even the half of all graduates who started working as government officials, only 70% worked for health services, and the rest 30% worked on jobs unrelated to health service. The wastage has been high in investment in the UHS, while it might be lower in investment in on-the-job training of practicing doctors (Thongphachanh, Inpong et al 2010).

For the purpose of this third approach, some select indicators of intermediate outcomes will be collected. Three types of indicators are considered:

- **Type 1** -- Indicators reflecting the learning achievement of the UHS professors being trained in the SNU; these indicators are to be developed and applied by the SNU Medical College on the basis of its standardized examination or interview battery at the beginning and end of the training period.

- **Type 2** -- Indicators reflecting the improvement in learning achievements of the UHS students; these indicators are to be developed on the basis of Korean Medical Education Assessment Consortium's standardized examination battery for those students who are in the middle of their six-year study program at the UHS.

- **Type 3** -- Indicators reflecting the diagnosis and treatment performance of the practicing

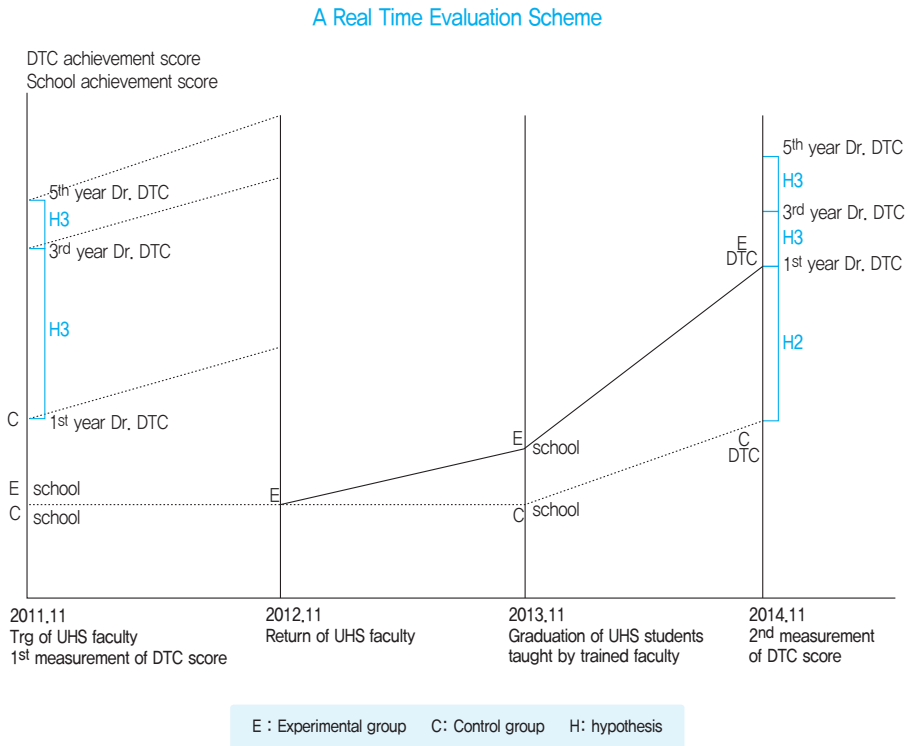
doctors, who graduated from the UHS and are working in central and provincial hospitals; these indicators will be applied to those doctors who are near the end of first, third, and fifth-year of health service practices. For this purpose, this study will use the (Lao) Disease Treatment Committee (DTC) indicators.

The DTC indicators were developed by the Ministry of Health with the technical assistance provided by the government of Sweden in 2002 and were formally instituted by the Lao Ministry of Health in all hospitals only in 2006 after experimentations by some hospitals. Although the Ministry provided detailed technical guidelines (Ministry of Health 2006), it has not enforced the system in all hospitals. It is left to each hospital for voluntary implementation. Moreover, the Ministry of Health has not collected the data from hospitals for compilation and analysis. Therefore, these DTC indicators will be collected systematically for the first time from all 4 central hospitals and 16 provincial hospitals under this evaluation study.

The DTC indicators are divided into two sets. One set is for the Standard Treatment Guidelines (STG), and the other for the Reasonable Use of Drugs (RUD) (Annex 1 and Annex 2). The Ministry of Health Guidelines for the DTCs (2006) are provided for 25 important and frequent diseases in Lao PDR (Annex 3). For this evaluation study, DTC data will be collected for the 5 most critical and often observed diseases chosen by each hospital. Each hospital is to establish a DTC to implement the guideline and collect the STG and RUD data on a monthly basis. The committee of each hospital is to analyze the data at the individual, department, and the entire hospital level. On the basis of the analysis, the Committee is to recommend that the Director of the hospital organize seminars, training courses, counseling for individuals and groups, and take other remedial actions. This evaluation study team consulted with several specialists in Lao PDR and Korea, especially the SNU Medical College faculty members, for the adequacy of the DTC data to be used in this evaluation study. The judgment was that although they are not the best, they are reasonable indicators to measure the quality of medical doctors' health service practices.

A summary of the real time evaluation scheme, especially the third approach, is depicted in the following diagram [Figure 2-1].

[Figure 2-1] A Real Time Evaluation Scheme – The Third Approach



4. Progress in the First Two Approaches

Satisfactory progress has been made in each of the three methodological approaches. Since there was no in-depth appraisal document to justify the project, the evaluation team made efforts to improve its understanding of the background of the health sector project. It first undertook in-depth interviews with government officials and visited several health institutions at all three different levels: central, provincial, and district hospitals and health centers. In addition, it randomly selected 8 UHS students in two groups and four (two junior and two senior members) faculty members for interviews (The results are to be found in Annex 1-1 of Chapter I.).

On the basis of the interview results, the policy statements of the government of Lao PDR, and information on other donors' aid activities, the evaluation team has already proposed a

restructuring of the current and programmed health projects financed by the government of Korea, including the Dr LEE Jong-Wook–Seoul Project (Cho and Kim 2011). The objective and general direction of the restructuring is to increase the synergistic effects of the health projects financed by the government of Korea and to align them with the Lao government's emphasis on the construction of healthy villages based on the expansion and quality improvement of the primary health care network and personnel (Ministry of Health 2010, 2007, Perks et al 2006, World Bank 2010 and 2006). As a result of the restructuring proposal, the Children's Hospital provided by the Korea International Cooperation Agency (KOICA) would function as a teaching hospital in collaboration with the UHS, and some trained faculty members under the Dr LEE Jong-Wook–Seoul Project would be assigned to the hospital upon their return.

At the same time, KOICA's programmed project to follow up the Children's Hospital Project will include a component to provide in-service training for the primary health care personnel working at the district hospitals and health centers, including those health centers to be strengthened under the Mother and Child project being supported by the KOFIH and the WHO, World Bank, ADB, and the Government of Belgium. Therefore, the Dr LEE Jong-Wook–Seoul Project also placed emphasis on the primary health care and other clinical specialties for the selection of the UHS faculty members to be trained in Seoul starting November 2011. Also, the Dr LEE Jong-Wook–Seoul Project would support establishment of the Educational Development Center for Health Professionals (EDC/HP), which will strengthen the curriculum, teaching/learning materials, and teaching methods of the UHS with finances from other donors in the future. Both the UHS-Seoul Jong Wook Lee and future projects would reinforce the improvement of educational quality in the UHS. As mentioned earlier, a fuller description of this proposal will be provided in Chapter V.

5. Progress in the Third Approach

To pursue the third approach, a set of baseline data has been collected and analyzed. The Type 1 indicators (Achievement of the UHS faculty members being trained in Seoul) are to be collected by the SNU Medical College staff.

For the test of the Hypothesis 1 (that academic achievement of the UHS students taught by the UHS faculty members trained in Seoul under this project is greater than other students), the Type 2 data (academic achievements of the UHS students near graduation) were obtained and analyzed. In May 2011 and January 2012, a group of the UHS students in 4-6th grades were tested with the academic performance test battery used for the Korean medical students in the past. The May 2011 test was a pilot survey, and the January 2012 test was undertaken to establish the baseline to measure the impacts of the Seoul Lee Jong Wook program against. This will be discussed in Chapter III of this report..

The results will be used as the baseline for the control group to be compared with the scores of the UHS students who will be taught by the UHS faculty members trained in Seoul during 2010-2011 and 2011-2012 under the Dr LEE Jong-Wook–Seoul Project (treatment group). The scores of the treatment group should be again collected in late 2012 or mid-2013.

However, the 2012 scores of the treatment group will not be significantly different from the baseline and another set of the scores for the treatment group should be collected at the end of 2013. The reason is that all UHS faculty members trained in 2010-2011 specialized in basic sciences and therefore would not teach the UHS students in 4-6th grades. However, the UHS faculty members to be trained in 2011-2012 have been already selected, and they include clinical science specialists who would be teaching the UHS students in 4-6th grades when they return to the UHS in late 2012. Therefore, their scores will be more significant to be compared with the control group (who were not taught by the UHS faculty members trained in Seoul under this project). Once this set of data is collected in mid-2013, the hypothesis 1 will be tested meaningfully.

For the test of the Hypothesis 2 (the quality of the health service practice measured by DTC indicators of the first year practicing doctors who graduated from the UHS and taught by the UHS faculty members trained in Seoul under this project (treatment group) is better than the other first year practice doctors in current and previous years (control group)), the 2010 (June-December average) DTC data have been collected for 2 out of 4 central hospitals and 15 out of 16 provincial hospitals, a total of 17 hospitals in September 2011. These data will serve as a control group's baseline.

The DTC data for the treatment group who will graduate from the UHS in 2012 should be collected in mid-2013. The 2011 and 2012 graduates will not be trained by the UHS faculty members trained in Seoul under this project in 2011. These faculty members specialize in basic sciences and therefore would teach only those students in grades 1-3 in 2011 and 2012. Only those UHS students graduating in 2013 would have been taught by the UHS faculty members trained in Seoul under this project in 2011-2012. Therefore, the DTC data for the first year practicing doctors of 2011 and 2012 will serve as control group data.

Currently, the DTC data have been collected for the 17 out of a total of 20 central and provincial hospitals. However, the data are aggregated for each hospital as a whole and are not identified by the name of individual doctors in the first, third, or fifth year of service practices. The DTC data for individual doctors of different lengths of service have been collected since October 2011. These DTC data for individual doctors in 2010 (and 2011) will serve as control group data, which will be compared with the DTC data for the treatment group who would graduate from the UHS in 2013 and would have practiced for one year. The result will serve to test the Hypothesis 2.

In addition, these data for both the control and treatment groups would serve a test of another useful corollary hypothesis: whether the academic achievement in the UHS is any good predictor of the quality of the health service practices in hospitals after graduation. If it is not, the value of the pre-service training at the UHS has to be questioned. The test of the hypothesis 2 is based on two assumptions. First, the academic achievements of the UHS students taught by the faculty members trained in Seoul under this project (treatment group) will be higher than the UHS students who were not (control group). This assumption will be confirmed with the hypothesis 1 test. Second, the students with a higher level of academic achievements will provide a higher quality of health services. We need to confirm this assumption with this corollary hypothesis 2 test.

Once we obtain the DTC data of individual practicing doctors in the first year of service, we can easily link them to their level of academic achievements (e.g. GPA points) at the UHS in the previous years. The UHS faculty members promised to provide this academic achievement data if a complete name of the first year practicing doctors is provided. Since this information is sensitive to practicing doctors, we will have to handle it with care and absolute confidentiality.

Some hospitals have already provided the DTC data by individual name, but most hospitals have not provided the DTC data for individual doctors yet.

For the test of the Hypothesis 3 (the level of the health service quality of the first-year practicing doctors taught by the UHS faculty members trained in Seoul is higher than that of other practicing doctors who have a longer period of experience but not taught by the UHS faculty members trained in Seoul), the DTC data collected in 2011, 2012, and 2013 will serve as a time series data for the control group. For the test of the Hypothesis 3, the control group (third and fifth-year practicing doctors') data will be compared with the late 2014 DTC data for the first year practicing doctors who graduated in 2013 and were taught by the UHS faculty members trained under this project in Seoul in 2011-2012.

The assumption behind this hypothesis 3 test is that the level of health service quality of practicing doctors increases with on-the-job training or experiences. If the DTC scores of the third-year practicing doctors are higher than that of the first year practicing doctors, the quality of health services can be improved not only by pre-service training of the UHS students, but also by in-service (on-the-job) training of practicing doctors after graduation from the UHS. In fact, it can be hypothesized that government's investment in the practicing doctors could be more efficient than investment in the pre-service training of the UHS students, if the investment in the in-service training of UHS graduates is more effective than the same amount of investment in pre-service training at the UHS.

6. Analysis of 2010 DTC Data

During September 5-6, 2011, the 2010 (June-December average) DTC data of 17 hospitals (2 central and 15 provincial hospitals were collected for use as baseline data for the control group. There were altogether 20 hospitals (4 central and 16 provincial hospitals) in Lao PDR. Although each hospital selected 3-5 important diseases, only a few diseases are common to many hospitals. The most common diseases selected are acute lung disease and severe diarrhea. Therefore, DTC data on acute lung diseases collected by 17 hospitals are presented below by region and poverty level.

1. DTC Data by Hospital and Province

The average DTC score of all hospitals is 7.97. The DTC score for a central hospital is 8.25; however, the average DTC score of all 15 provincial hospitals is 7.93. Therefore, the quality of health services offered by medical doctors seems to differ between central and provincial hospitals, with a higher level of health service quality in central hospitals.

There is also a regional difference among provincial hospitals. The standard deviation of the DTC scores among provincial hospitals is 0.7. The average DTC score for the central region is 7.80, while the average for the northern region 8.13, and the southern region 7.72. However, these regional differences are not large enough to reject the null hypothesis of no difference between pairs of regions (i.e., Central vs. Northern; Central vs. Southern, and Nothern vs. Southern regions).

The DTC scores are also negatively related to the level of poverty among provinces. The higher the level of poverty in the provinces, the lower is their DTC score. The correlation coefficient between the DTC scores of all hospitals and the poverty level of all provinces is -0.57. We can conclude that the quality of health services offered by medical doctors is negatively correlated with the level of poverty among provinces. The Lao government and the donor agencies already recognize the imbalances in the allocation of medical resources across regions as one of the major challenges. (Ministry of Health 2007) This finding shows that the regional imbalance also takes the form of distribution of quality medical personnel across regions.

<Table 2-1> DTC Data on Acute Lung Disease by Region and Poverty Level

Region	Hospital	Acute Lung Disease			Poverty	Average by Region (Standard deviation)		
		DTC	STG	RUD	Level*	DTC	STG	RUD
Central Hospital	Mitthaphab					8.25 (0.35)	8.25 (0.04)	8.18 (0.63)
	Mother and Child	8.50	8.38	8.63	1.33			
	Setthatilath							
	Mahosot	8.00	8.26	7.73	1.33			
Central Provincial	Vientiane	8.25	8.00	8.50	1.73	7.80 (0.54)	7.73 (0.81)	7.87 (0.47)
	Khammouan	8.02	8.07	7.96	2.00			
	Savannakhet	7.90	8.30	7.50	1.38			
	Bolikhamxay	7.02	6.53	7.51	2.20			
Northern Provincial	Louangphrabang	8.70	9.30	8.10	1.78	8.13 (0.90)	8.25 (0.98)	8.01 (0.90)
	Xayabouly	8.05	8.25	7.85	1.67			
	Phongsaly	9.87	9.87	9.87	1.73			
	Louangnamtha	7.60	7.70	7.50	1.70			
	Bokeo	7.13	7.26	7.00	2.14			
	Houaphan	7.83	8.00	7.65	2.00			
	Xiengkhouang	7.75	7.40	8.10	2.43			
Southern Provincial	Salavan	7.75	7.40	8.10	1.36	7.72 (0.42)	7.63 (0.59)	7.89 (0.42)
	Champasak	8.29	8.30	8.27	2.17			
	Sekong**	7.30		7.30	2.00			
	Attapeu	7.55	7.20	7.90	1.86			
Total	Average	7.97	8.01	7.97	1.84			
Central	Total	8.25	8.25	8.18	1.33			
Provincial	Total	7.93	7.97	7.94	1.88			

*Constructed on the basis of the number of districts of extremely poor, poor, and non-poor out of total districts. Poor and extremely poor are weighted by 2 and 3, respectively.
**DTC data is only based on RUD data

2. DTC DATA by Hospital and Experience of Practicing Doctors

Collection of the DTC data of individual doctors is incomplete yet. Of the 17 hospitals that reported DTC data, only 6 (2 central and 4 provincial) hospitals provided the DTC scores at the individual doctors' level. Most six hospitals show the DTC scores of individual doctors by the year of practice experience. However, one problem is that since each hospital selected the most frequently observed and important five diseases prevalent among it's the population under its purview, the diseases are not exactly the same across hospitals. Some overlap, but others do not. Therefore, we cannot compare the DTC score of doctors with different lengths of experience for the same group of diseases across hospitals.

Luckily, each of the six hospitals reports the DTC scores of doctors with different lengths of experience for some of the same group of diseases. Therefore, we can compare the DTC scores of doctors with different lengths of experience across different hospitals and disease groups.

A preliminary analysis indicates that the DTC indices are positively correlated with the practice years of the doctors. The doctors with a longer experience do provide higher-quality health services. The DTC score of the first-year doctors is 7.45, while the DTC score of the third-year doctors is 7.71. The third-year doctors earned higher scores in both RUD and STG. The fifth-year doctors scored higher DTC (in both RUD and STG) than the first-year doctors. However, the DTC score of the fifth-year doctors is lower (7.67) than that of the third-year doctors (7.71). The lower DTC score of the fifth-year doctors is due to the lower RUD score (7.76) than the third-year doctor (7.92). The fifth-year doctors have a higher STG score (7.58) than the third-year doctors (7.50).

However, the differences between the mean DTC scores of the first-year, third-year, and fifth-year doctors are statistically insignificant at the 5% level of significance. This means that the difference in the mean DTC scores among doctors with different practice years is statistically meaningless, and the scores are practically the same. It also means that doctors clinical skills do not necessarily improve over their years of service and with their on-the-job training or experiences.

Therefore, whether the doctors' quality of care increases with their years of service needs to be confirmed with a greater number of observations in disease types, hospitals, and doctors. If it is not confirmed, we should rather conclude that the difference in the quality of health services between doctors with different years of practice is insignificant. This means that the current in-service or on-the-job training programs are ineffective. For the future improvement of the health service quality in Lao PDR, the quality improvement in the academic programs of the UHS could play a more important role than the current in-service training programs in hospitals as long as a higher level of academic achievements leads to a higher quality of health services. This stresses the importance of verifying the linkage between the academic achievement at the UHS and the quality of health services of the doctors upon graduation from the UHS as part of testing the hypothesis 2.

<Table 2-2> DTC Data by Hospital and Experience of Doctors

Hospitals		Average by the year of service of each hospital		
		DTC	RUD	STG
1st year of service				
6 hospitals	Mother and Child	8.50	8.43	8.57
	Setthatilath*			
	Mahosot	7.46	7.24	7.68
	Vientiane***			
	Luang Namtha	7.01	7.27	6.76
	Houaphan*			
	Xien Khouang	6.65	6.87	6.43
	Champasak	7.75	8.05	7.45
	Sekong	7.31	7.96	6.66
	Attapeu**			
	Average across hospitals and diseases	7.45 (0.64)	7.64 (0.60)	7.26 (0.80)
3rd year of service				

Hospitals		Average by the year of service of each hospital		
		DTC	RUD	STG
6 hospitals	Mother and Child	8.70	9.00	8.40
	Setthatilath			
	Mahosot	7.17	6.94	7.40
	Vientiane			
	Luang Namtha	7.62	7.87	7.37
	Houaphan			
	Xien Khouang	7.68	7.75	7.60
	Champasak	7.28	7.80	6.75
	Sekong	7.84	8.18	7.50
	Attapeu			
	Average of hospitals and diseases	7.71 (0.55)	7.92 (0.67)	7.50 (0.53)
5^{th} year of service				
4 hospitals	Mother and Child	8.70	9.00	8.40
	Setthatilath			
	Mahosot	7.51	7.32	7.70
	Vientiane			
	Luang Namtha	7.71	7.81	7.60
	Houaphan			
	Xien Khouang	7.98	8.15	7.80
	Champasak	7.49	7.76	7.22
	Sekong			
	Attapeu			
	Average of hospitals and diseases	7.67 (0.23)	7.76 (0.34)	7.58 (0.26)

Numbers in parentheses are standard deviations.

- We have some remaining tasks in the area of type 3 indicators' data collection and analysis. We still need to fine-tune the DTC data collection system, and also need to investigate the correlation between the DTC performance data and the doctors' academic achievement scores from their earlier years at the UHS. The efforts are currently under way to implement these tasks.

7. Conclusions and Recommendations

In early 2011, a KDI School research team launched a real time evaluation of the UHS-JONG WOOK LEE Seoul Project. The project, which was agreed in 2010 to be implemented for the next three years, was financed by the Korea Foundation for International Healthcare (KOFIH) under the blessing of the Korean Ministry of Health and Welfare, and executed by the the Seoul National University College of Medicine for improvement of the teaching and research personnel of the University of Health Sciences in the Lao PDR.

For this real time evaluation, the study team adopted three approaches. First, it evaluated the goals and objectives of the project against the government's national development and health sector policies and strategies. In this way, the ownership of the project was evaluated.

Secondly, it evaluated the design of the project against the aid programs and activities of other Korean and foreign donor agencies. In this way the harmonization efforts of the project was checked.

Thirdly, it evaluated the effectiveness of the project against the intermediate outcomes of the project. In this way, the results-based aid project management was assessed. Since separate reports are prepared for the first and second approaches, this paper focuses on the third approach.

Since it is too early to assess the outcomes of the project, the evaluation team focuses on the establishment of a baseline data system. Together with the achievement records of the UHS, the disease treatment committee (DTC) data of each hospital is judged to be appropriate for the evaluation of the outcome of the project. This data system would not only help evaluate the outcomes of this project, but also assist the Ministry of Health to monitor the effectiveness and

efficiency of health investment programs/projects and recurrent health service provisions to the population, especially at the local level.

However, the DTC data system has not yet been fully established administratively, and the Ministry of Health has not collected, compiled, and analyzed them yet. Moreover, although the DTC data are compiled on an individual doctor basis, only a few hospitals are providing the evaluation team with such individual doctor-based information. Therefore, Ministry of Health should be urged to monitor more rigorously the data compilation system and provide the data to the evaluation team more cooperatively.

The preliminary analysis of the DTC data has led to the following findings. First, there are differences in DTC indices between central and provincial hospitals. Also, there are variations in DTC indices among individual hospitals, provinces, and regions. However, the differences are statistically insignificant.

Second, the DTC indices are somewhat negatively correlated with the poverty index of provinces and regions. This means that the hospitals in the poorer regions offer a poorer quality of health services.

Third, the DTC indices are positively correlated with the service years of the practicing doctors. The doctors with a longer on-the-job experience provide a better health services. However, the difference in the quality of health services among doctors with different years of practice is statistically insignificant. This means that doctors do not improve the quality of their health services on-the-job in Lao PDR. However, this finding needs to be confirmed with a greater number of observations in disease types, hospitals, doctors. Tentatively, we can conclude that for the improvement of the health service quality in Lao PDR, the improvement in the quality of the academic program in the UHS would play a more important role than the current on the-job training programs in hospitals. This tentative conclusion still depends on the assumption that the level of academic achievements at the UHS is positively related to the quality of practicing doctors' health services upon graduation from the UHS.

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Annex 2-1: STG Indicators

N	Age	W	T	illness History				Examination					Treatment given				
				Stool counted	Stool with Blood /mucus	Latest urinate	Treatment before	General status	Eye and Tongue dry	Skin contract	Frontal	Pouls	Liquid fruits /milk / rice	IV Fluid	Correctly quantity	Antibiotic used	Antispasmodic drug used
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
Total																	
Multiplied																	
Score																	
%																	
Total Score:							Divided by number of patient										

Annex 2-2: RUD Indicators

	1	2	3	4	5	6	7	8			9	10
	Average Number of Drug Used	Essential drug used	Written down generic name	used drug available in Hosp	Clearly and correctly written	Herbal used	Antibiotic used	%Reasonable used of antibiotic			Injected drug used	%Reasonable injected drug
								Quant	Durat	Reason		
1												
2												
3												
4												
5												
6												
7												
Total Drug Used												
Divided by	Number patients	Total Drug used	Total Drug used	Total Drug used	Total Drug used	Total Drug used	Total Drug used		Total antibiotic used		Total Drug used	Total injected drug used
Average%												
Score												

Annex 2-3: Important and Frequent Diseases Selected for DTC

1: Malaria

2: Diarrhea

3: Parasite

4 a: Pneumonia

4 b: Acerbity Pneumonia (In patient)

5 a: Dengue (In patient)

5 b: Dengue with blood (Out patient)

6 a: Tuberculous 1

6 b: Tuberculous 2

7 a: Leprosy

8 a: Hepatitis A, B, and C

9: Typhoid

10: Melioidosis

11: Rickettsiosis

12: Leptospirosis

13: Chest pain

14: Hypertension

15: Abortion

16: GEU

17: Peritonite of pelvien

18: Trauma cranien

19: Hemorrhage digetive

20: Stone Bladder

21: Acute Kidney

22: Menigitis

23: Anemia

24: Asthma

25: Fracture in arm and leg

Chapter III

Dr LEE Jong-Wook–Seoul Project and the Performance of the UHS Medical Students

KDI SCHOOL
KDI School of Public Policy and Management

Dr LEE Jong-Wook–Seoul Project and the Performance of the UHS Medical Students

1. Introduction

In an effort to improve the quality of healthcare in Lao P.D.R, Dr LEE Jong-Wook–Seoul Project was designed with the goal of upgrading the capacity of faculty members at the University of Health Science (UHS), which is the sole institution of higher learning for medical education in the country. The benchmark of the project is the Minnesota Project, in which the professors at the SNU including those in College of Medicine received the training at the University of Minnesota from 1954 to 1961 with the support of the US government. Although there is no rigorous quantitative evaluation of the Minnesota Project, it is widely believed that the project played a crucial role in dramatically improving the capacity of the medical profession for teaching, research, and practice in Korea.

The project, named after the late secretary general of the World Health Organization (WHO), is funded by the Korea Foundation for International Healthcare (KOFIH) and implemented by the College of Medicine at Seoul National University (SNUMC).

For the impact evaluation of the project, the KDI School Impact Evaluation Team has decided to focus on two intermediate outcome measures: UHS students' learning outcomes and quality of practice by young physicians (recent graduates from the UHS). The main objective of this chapter is to describe the evaluation design focusing on the first of these two measures, and

present the baseline data collected during the first year of the impact evaluation research together with a preliminary analysis.

One key outcome measure from the Project is the academic performance of UHS students. The desired eventual outcome is of course improvement in the healthcare service enjoyed by the Lao public and improvement in their health status. If the faculty capacity building efforts do not lead to improved academic performance on the part of the students, however, it is hard to imagine how the Project might garner the eventual outcome.

To assess the medical students' academic performance, it is probably ideal to design a test battery from scratch in view of their curriculum and the prevailing health environment in the country. However, development of such a test battery would be too expensive. Instead, we adopt an existing test instrument for medical students in Korea. The battery is taken from the test bank developed and maintained by the Korean Medical Education Assessment Consortium (MEAC), an alliance of colleges of medicine in Korea. The performance gap detected through the battery between the UHS students and Korean medical students might be attributed to various factors such as differences in the curriculum and the field conditions for medical practice. Yet an improvement in the academic achievement over time by the UHS students should be captured by the battery. In addition, the performance records by Korean students should provide a useful benchmark against which we can compare the achievement level of the Lao students. Among other things, the test results and the changes thereof should help fine-tune the capacity building program for the participating UHS faculty members in the course of the Dr LEE Jong-Wook–Seoul Project.

The rest of this chapter is organized as follows. Section 2 and section 3 provide the design of the research. The statistical model of evaluation is proposed in section 2, and the design and the implementation of the MEAC test are presented in section 3. The subsequent three sections report the findings from the baseline data. Section 4 presents the results of the MEAC medical knowledge test, and section 5 describes students' demographic and economic backgrounds. In section 6 a statistical analysis is conducted to help identify the determinants of test scores and relative performance among subjects. Lastly a concluding remark is provided in section 7.

2. Evaluation Model

The nature of the intervention of Dr LEE Jong-Wook–Seoul is to improve the capacity of faculty members at UHS in both teaching and research. It is expected that the project will directly advance the teaching skill and research capacity of trainees. Further, it is expected that the academic performance of students will improve. Ultimately, we can expect that the successful implementation of the project will contribute to upgrading the level of medical treatment offered at hospitals and improving the overall health of Lao population.

<Table 3-1> Components in the Results Chain of Dr LEE Jong-Wook–Seoul Project

Inputs	Outputs	Outcomes
- Training program for faculty members - Provision of medical equipments - Development of curriculum - Faculty consensus workshop	- Upgrade of teaching skills of the trainees - Upgrade of research capability of the trainees	- Improvement of students' performance - Improvement of level of medical treatment - Improvement of overall health of Lao population

The characteristics of the Dr LEE Jong-Wook–Seoul Project place the project in the category of the training-of-the-trainers model in medical education. The conventional evaluation method for these programs is the survey of trainees and students of the trainees. For example, Green *et. al*. (2005) and Levine *et. al*. (2007) conducted a survey at the end of the program for educators in podiatric and geriatric medicine, respectively, where participants were asked to rate their levels of competence for each category of skills before and after the program. Both of the studies also circulated the follow-up surveys among the trainees some time after the program. Stratos *et. al*.(2006) evaluated the faculty development program in end-of-life care using a survey of participants and their students at the seminar performed by the participants.

While a survey has the advantage of providing a direct measure of program effects, there is some limitation in employing survey for the evaluation of Dr LEE Jong-Wook–Seoul Project in addition to the reasonable skepticism one might hold regarding subjective evaluation inherent in the approach. First, the curriculum of the program is not formalized yet, and perhaps more

importantly, the program does not envision a single uniform curriculum to be applied to all participants. The purpose of the project is not to train a group of medical professionals in the same field. Rather, it is designed to provide training customized to each participant. In addition, the output of the project is not confined to the medical knowledge, but it includes the motivation for teaching and research activity. Hence, it is not easy to specify a set of skills that all the participants are expected to learn. Secondly, the participants may have an incentive to overstate the effectiveness of the program, if they are afraid that a poor evaluation result might lead an early termination of the program.

As an alternative to a self-reported survey, this report proposes to measure the impact of the project in terms of students' academic performance. In general, medical students' performance will be influenced by various factors including the teaching capacity of faculty members, the design of curriculum, the choice of textbook, physical environment, language for medical terms and students' motivation and ability.

$$Performanc\ e = f(Faculty, Curriculum, Textbook, Enviroment, Language, Ability, etc)$$

On the condition that the information on these factors as well as performance is obtained, we can estimate the relationship among them in a regression framework as follows.

$$Y_{i,j,t} = \alpha + \varrho D_{i,j,t} + \beta X_{i,j,t} + \mu_i + \theta_j + \eta_t + \varepsilon_{i,j,t}$$

The dependent variable, $Y_{i,j,t}$, is the academic performance of an individual i at time t measured with a score in a standardized test for medical knowledge in subject j. The treatment variable, $D_{i,j,t}$, is an indicator of whether an individual was taught in class of subject j by a professor who received the training under the project. A set of explanatory variables, $X_{i,j,t}$, includes all other observable characteristic of school, class and individuals. The unobserved individual-specific factors like ability or motivation is represented by. In addition, the subject-specific and time-specific factors are denoted by μ_i and η_t, respectively. Lastly, idiosyncratic noise is included as an error term $\varepsilon_{i,j,t}$.

In this statistical model, the treatment effect is measured by the estimate of the coefficient ρ. The major challenge is the measurement of both the performance and educational factors, and the potential correlation between the regressors and the various components of the error term $\mu_i + \theta_j + \eta_t + \varepsilon_{i,j,t}$. The coefficient ρ may be consistently estimated using the difference-in-differences strategy, under the identifying assumption that the over-time evolution of test scores would be comparable between the treatment (D=1) and the comparison (D=0) groups. The equation may be estimated subject by subject or for the whole set of subjects including subject fixed effects. The next section describes the design and the implementation of the test adopted for the measurement of the UHS students' academic performance.

3. Design and Implementation of the MEAC Medical Knowledge Test

In order to measure the students' performance in a standardized test, we adopted the test of medical knowledge administered by the Medical Education Assessment Consortium (MEAC) in Korea. The MEAC implements a test of basic medicine for 2nd-year students in medical college, and a test of clinical medicine for 4th-year students. The level of the test questions is similar to the national exam for license and is designed to be comparable from year to year. We plan to give the full set of the test to the students at UHS in every year starting 2011.

The first round of the test was conducted on the 17th-19th of January, 2012, which is in the registration period for the academic year of 2011-2012. The 2010 test of MEAC was taken as test questions. The test of basic medicine was given to 5th year students who completed 4 years at UHS, and the test of clinical medicine to 6th year students who completed 5 years at UHS. The total number of questions is 260 for basic medicine and 480 for clinical medicine. In the test of clinical medicine, the field of health regulation (20 questions) was discarded since it is not relevant in the case of Laos. The number of questions by subject is as follows.

<Table 3-2> Structure of Test of Medical Knowledge

Test of Basic Medicine		Test of Clinical Medicine	
Field	No. of Questions	Field	No. of Questions
	60	Internal Medicine	237
	35	Surgery	70
	35	Pediatrics	45
	45	Obstetrics & Gynecology	35
	35	Psychiatry	45
	35	Other Fields	9
	15	Preventive Medicine	39
	260	Total	

Note: The questions in the field of health regulation (20 questions) are excluded in the Test of Clinical Medicine for students at UHS. 'Other fields' includes 'Dermatologic disease,' 'Disease of ear, nose, and throat' and 'Disorders of eye and adnexa.'

The test was conducted in the same manner as the one for Korean students in terms of time, and students were given both the English version and the Lao version of the test questions.

In addition to test scores, the information on students' entrance exam score and grades in each semester needed to be collected. Since a survey would not be reliable in obtaining these scores, we plan to collect this information directly from the administration department at the UHS.

At the end of the test, a short survey was conducted in order to collect information of students' demographic, socioeconomic, and academic backgrounds.

The participation rates of the test were 36.4% for 5th-year students, and 52.4% for 6th-year students. The relatively low rates of participation may be due to the fact that the dates of test were in the registration period before the beginning of the academic year.

<Table 3-3> Participation Rates in the 1st UHS Test

Type	Year	Enrollment	Participants	Participation Rate (%)
Basic Medicine	Year 5	385	140	36.4
Clinical Medicine	year 6	238	120	52.4

Note: Year 6 enrollment includes one student who was not in the registration list but took the test. The students who took the test but did not complete it were excluded. The number of those students is 8 for Test of Basic Medicine and 17 for Test of Clinical Medicine.

The relatively low participation implies that the results of baseline test may not represent the performance level of all the students. That is, the group of students who took the test may differ systematically from the group of those who did not take it. A careful comparison of observable characteristics between these groups needs to be conducted. One thing to note, however, is that the distribution of the test scores does not have a large variation among the participants, as is presented below. This may be considered as an indication that the degree of sample selection is not likely to be substantial. In this respect, the results of the baseline test may still be useful in understanding the current level of academic performance of students at UHS.

The second and third rounds of the test and the survey are to be implemented at the end of the academic year of 2011-2012 and 2012-2013, the format of the data is to be the same as that of the first round.

4. Results from the MEAC Medical Knowledge Test

As explained earlier, the MEAC Medical Knowledge Test consists of two parts: basic medicine and clinical medicine. We begin our discussion of the test results with the basic medicine component.

The results of the Test of Basic Medicine are summarized in <Table 3-4>. There are total 260 questions, and the mean percentage score is 24.4%. The minimum and maximum score is 15.8% and 35.0% respectively. The inter-quartile range is from 21.5% to 26.9%, which suggests that the distribution is relatively concentrated around the mean. The hypothesis that the mean is not different from the expected value of 20% is rejected at the conventional level of significance.

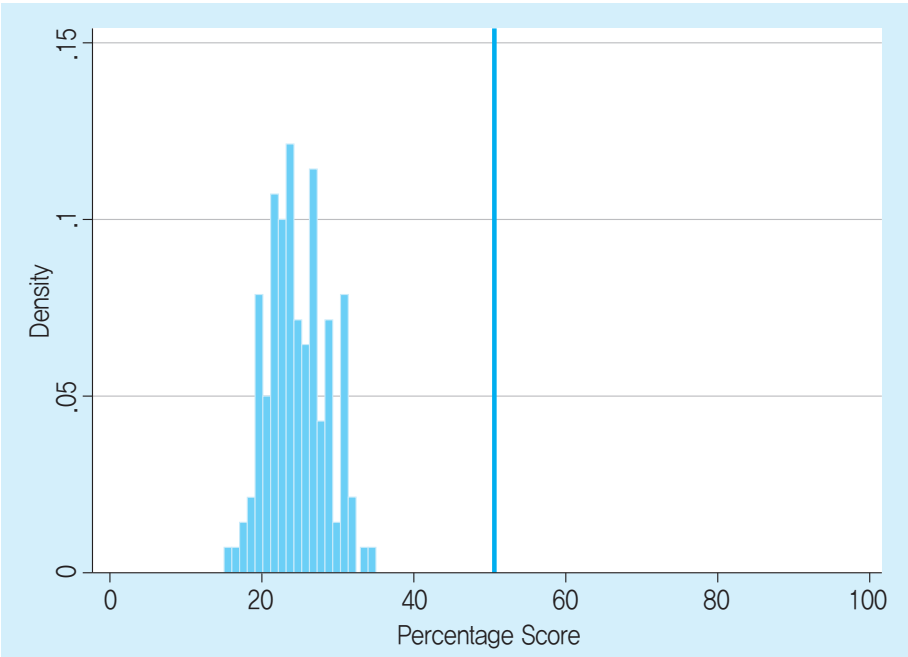
<Table 3-4> Test Scores of Basic Medicine by Field

Field	No. of Questions	Correct Answers UHS Students (140)				Correct Answers Korean Students (930)	A/B
		Mean (%, A)	Min (%)	Max (%)	ρ-value	Mean (%, B)	
Total	260	24.4	15.8	35.0	0.000	50.9	0.48
Anatomy	60	24.5	10.0	41.7	0.000	52.9	0.46
Physiology	35	24.4	8.6	45.7	0.000	46.0	0.53
Biochemistry	35	24.2	8.6	40.0	0.000	43.0	0.56
Pathology	45	24.5	8.9	44.4	0.000	55.0	0.45
Pharmacology	35	21.0	2.9	40.0	0.068	47.5	0.44
Microbiology	35	28.8	8.6	51.4	0.000	59.2	0.49
Parasitology	15	21.9	0.0	53.3	0.038	49.7	0.44

Note: 'ρ-value' was calculated for the hypothesis that the mean test score does not differ from the expected value for a student without any medical knowledge. The expected value is 20% for all the questions in the Test of Basic Medicine. The comparison group in Korea is the group of students who took the test at the end of the 2nd year in medical college.

In order to compare the academic performance of students at the UHS and in Korea, the students who took the test at the end of 2nd year in medical college in Korea are considered as a comparison group. The mean score of the Korean students is 50.9%, and the ratio of the mean score of students at UHS to that of Korean students is 0.48. That is, according to the test results, the level of medical knowledge of students at UHS is around 48% of that of the Korean students.[2] The distribution of test scores in Basic Medicine is shown in [Figure 3-1] below.

[Figure 3-1] Distribution of Test Score of Basic Medicine



Note: The red line indicates the mean score of the comparison group in Korea. The comparison group in Korea is the group of students who took the test at the end of the 2nd year in medical college.

The performance varies slightly by fields. In terms of absolute level, the highest performance was achieved in microbiology (28.8%), whereas the lowest was achieved in pharmacology (21.0%) and parasitology (21.9%). The hypothesis that the mean score does not differ from the

2 A more precise measure of relative performance is the score standardized with the mean and standard deviation of the comparison group. This is to be done when the information on the distribution of score of the comparison group is obtained.

expected score when students randomly choose their answers is rejected at 5% significance level for pharmacology and at 1% level for parasitology. The level of performance relative to Korean students is highest in biochemistry (0.56) and physiology (0.53), and lowest in pharmacology (0.44) and parasitology (0.44).

We observe more variation in the performance across 17 sub-fields defined by the MEAC, which is displayed in <Table 3-5>. On the absolute level, the highest performance was achieved in Genesis & Differentiation (37.5%) and Endocrine system (34.9%), while the lowest performance was achieved in Musculoskeletal System (19.1%) and Neoplasm (20.4%). With respect to the performance relative to Korean students, the highest level was obtained in Genesis & Differentiation (0.65) and Blood & Blood Forming Organ (0.64), whereas the lowest level was found in Musculoskeletal System (0.33) and Neoplasm (0.35).

There is more variation in performance among sub-fields by the relative level than the absolute level. By the absolute level, the mean scores of 12 sub-fields are in the range between 21% and 27%, whereas, by the relative level, the ratios of 9 sub-fields are in the range between 0.45 and 0.55. The hypothesis that the mean does not differ from the expected result from random choice of answers is not rejected at the conventional level of significance in four sub-fields: Neoplasm, Musculoskeletal System, Respirator and Kidney & Urinary Tract.

<Table 3-5> Test Scores in Basic Medicine by Sub-field

Sub-Field	No. of Questions	UHS Students (140)				Korean Students (930)	A/B
		Mean (%, A)	Min (%)	Max (%)	ρ-value	Mean (%, B)	
Total	260	24.4	15.8	35.0	0.000	50.9	0.48
Metabolism	19	22.4	5.3	52.6	0.001	43.1	0.52
Inheritance	12	26.7	8.3	58.3	0.000	45.3	0.59
Cell & Tissue	14	22.3	7.1	57.1	0.009	55.5	0.40
Neoplasm	9	20.4	0.0	55.6	0.732	59.0	0.35
Infection	45	26.3	11.1	44.4	0.000	53.8	0.49
Immunity	8	24.0	0.0	75.0	0.004	62.5	0.38
Genesis & Differentiation	4	37.5	0.0	100.0	0.000	57.8	0.65
Human Response	21	26.0	4.8	47.6	0.000	47.4	0.55
Musculoskeletal System	13	19.1	0.0	53.8	0.322	57.0	0.33
Nervous System	33	21.7	3.0	48.5	0.013	45.1	0.48
Blood & Blood Forming Organ	8	28.3	0.0	62.5	0.000	44.0	0.64
Circulator	14	22.8	0.0	57.1	0.003	48.8	0.47
Digestive System	14	26.7	7.1	71.4	0.000	50.3	0.53
Respirator	10	21.4	0.0	50.0	0.216	52.8	0.40
Endocrine System	11	34.9	0.0	72.7	0.000	66.4	0.53
Kidney & Urinary Tract	11	21.2	0.0	45.5	0.180	45.8	0.46
Reproductive System	14	22.6	0.0	64.3	0.013	48.9	0.46

Note: 'ρ-value' was calculated for the hypothesis that the mean test score does not differ from the expected value for a student without any medical knowledge. The expected value is 20% for all the questions in the Test of Basic Medicine. The comparison group in Korea is the group of students who took the test at the end of the 2nd year in medical college.

Although the absolute levels of performance in Test of Basic Medicine and Clinical Medicine do not differ significantly from each other, the performance level relative to Korean students is lower for Test of Clinical Medicine than for Test of Basic Medicine according to <Table 3-6>. The mean score in the Test of Clinical Medicine is 25.6%, and the minimum and maximum are 20.2% and 39.0%, respectively. The students who took the test at the end of 4th year in medical college in Korea are taken as the comparison group. The mean score of Korean students is 81.9%, and the ratio of mean score of students at UHS to that of Korean students is 0.31. The density distribution of total score is presented in [Figure 3-2]. Both absolute and relative levels of scores are the highest in the field of Surgery (28.3%, 0.37) and Preventive Medicine (27.7%, 0.33), while it is the lowest in Obstetrics & Gynecology (16.2%, 0.20).[3] The hypothesis that the mean is not different from the expected score of a student without any medical knowledge is rejected at a conventional significance level in all the fields.

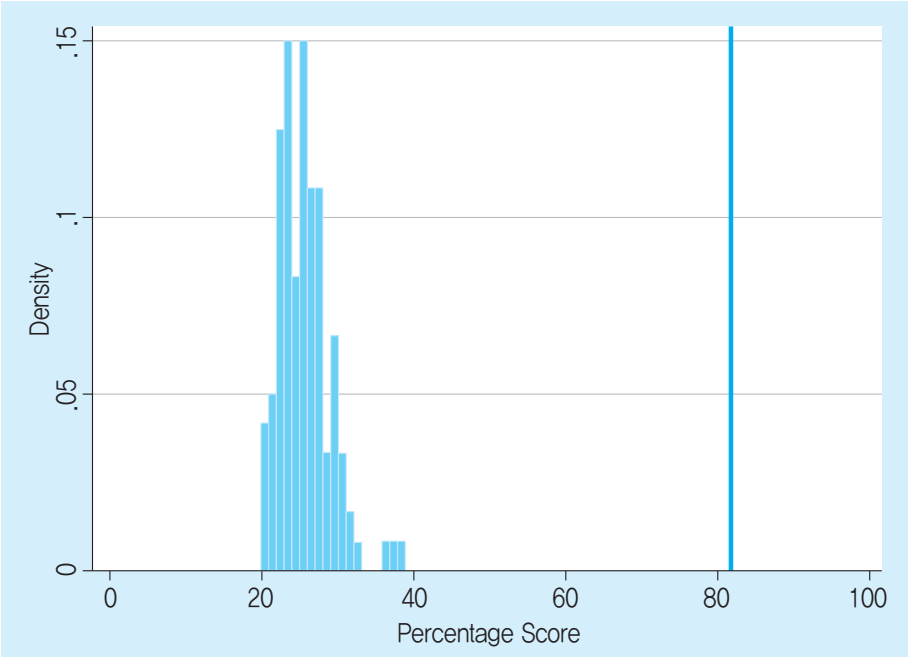
<Table 3-6> Test Scores of Clinical Medicine by Field

Field	No. of Questions	UHS Students (120)				Korean Students (1,222)	A/B
		Mean (%, A)	Min (%)	Max (%)	ρ-value	Mean (%, B)	
Total	480	25.6	20.2	39.0	0.000	81.9	0.31
Internal Medicine	237	25.8	19.0	41.4	0.000	84.4	0.31
Surgery	70	28.3	11.4	47.1	0.000	77.6	0.37
Pediatrics	45	25.0	8.9	46.7	0.000	77.0	0.32
Obstetrics & Gynecology	35	16.2	2.9	37.1	0.000	79.9	0.20
Psychiatry	45	26.3	11.1	44.4	0.000	82.1	0.32
Other Fields	9	28.6	0.0	66.7	0.000	71.2	0.40
Preventive Medicine	39	27.7	5.1	46.2	0.000	84.2	0.33

Note: 'ρ-value' was calculated for the hypothesis that the mean test score does not differ from the expected score of a random answer. The expected score for a student without any medical knowledge in the Test of Clinical Medicine is 18.2% because of R-type questions. R-type questions have more than five choices, and the expected score of 54 R-type questions is 4.1%. The comparison group in Korea is the group of students who took the test at the end of the 4th year in medical college.

3 For the Test of Clinical Medicine, the students at UHS completed 5 years at UHS, whereas the Korean students in the comparison group completed 6 years in university (2 years in college of natural science and 4 years in college of medicine).

[Figure 3-2] Distribution of Test Scores of Clinical Medicine



Note: The red line indicates the mean score of the comparison group in Korea. The comparison group in Korea is the group of students who took the test at the end of the 4th year in medical college.

The test scores vary greatly across 29 sub-fields defined by MEAC as is presented in <Table 3-7>. All the questions in Test of Clinical Medicine are categorized into general and special medicine. There are 10 sub-fields in general medicine and 19 sub-fields in special medicine. The hypothesis of no medical knowledge is rejected at a conventional significance level in all the sub-fields except the five sub-fields of Clinical Test (0.517), Injury and Intoxication (0.314), Prenatal and Neonatal Disease (0.149), Disease of Ear, Nose, and Throat (0.081) and Disorders of Eye and Adnexa (0.058) with p-values in parentheses.

In terms of the performance relative to Korean students, in the area of general medicine, the sub-fields of Physical Examination and Diagnosis (0.43) and Health Promotion and Disease Prevention (0.35) exhibit the highest level, whereas the sub-fields of Major symptom and pathophysiology (0.21), Clinical test (0.24) and Normal structure and function of the Human body (0.24) mark the lowest. In the area of special medicine, the sub-fields of Gestational,

Puerperal, and Postpartum Disease (0.69), Dermatologic Disease (0.54), Nervous System Disease (0.43), Kidney, Urinary, Male Genital Disease (0.38) show the highest level, while the sub-fields of Injury and Intoxication (0.26), Infection and Parasitic Disease (0.24) and Genetic Disorder and Congenital Deformation (0.14) point to the lowest level. The absolute and relative levels of performance are highly correlated among sub-fields.

Interestingly, the sub-fields of Musculoskeletal System and Neoplasm exhibit the lowest level of relative performance in the test of Basic Medicine, these sub-fields show relatively high performance in the Test of Clinical Medicine.

<Table 3-7> Test Scores of Clinical Medicine by Sub-field

Sub-Field	No. of Questions	Correct Answers UHS Students (120)				Correct Answers Korean Students (1,222)	A/B
		Mean (%, A)	Min (%)	Max (%)	ρ-value	Mean (%, B)	
Total	480	25.6	20.2	39.0	0.000	81.9	0.31
General Medicine:							
Normal Structure and Function of the Human Body	26	20.6	3.8	50.0	0.000	85.8	0.24
Normal Development, Growth, and Aging	15	24.4	0.0	53.3	0.000	82.1	0.30
Occurrence of Disease and Death	3	29.2	0.0	100.0	0.000	92.7	0.31
Major Symptom and Pathophysiology	38	17.0	5.3	31.6	0.000	80.5	0.21
Physical Examination and Diagnosis	10	33.3	10.0	70.0	0.000	76.9	0.43
Clinical Test	6	21.0	0.0	50.0	0.517	86.5	0.24
Treatment and Complication	31	20.1	3.2	41.9	0.000	79.2	0.25
Health Promotion and Disease Prevention	20	29.0	5.0	55.0	0.000	82.8	0.35
Health Care Management	7	24.4	0.0	71.4	0.002	86.4	0.28
Industrial Environment	12	27.5	8.3	58.3	0.000	85.1	0.32

Sub-Field	No. of Questions	Correct Answers UHS Students (120)				Correct Answers Korean Students (1,222)	A/B
		Mean (%, A)	Min (%)	Max (%)	ρ-value	Mean (%, B)	
Special Medicine:							
Nutritional and Digestive Disease	72	29.0	18.1	48.6	0.000	85.3	0.34
Injury and Intoxication	8	21.5	0.0	75.0	0.314	81.1	0.26
Neoplasm	7	25.4	0.0	71.4	0.000	72.1	0.35
Blood and Hematopoetic Disorder	19	24.1	10.5	52.6	0.000	82.3	0.29
Cardiovascular Disease	34	27.1	5.9	67.6	0.000	85.4	0.32
Musculoskeletal System and Connective Tissue Disease	11	24.2	0.0	54.5	0.000	82.9	0.29
Nervous System Disease	18	27.9	5.6	61.1	0.000	65.3	0.43
Allergic and Immune Disorder	7	26.8	0.0	71.4	0.000	85.6	0.31
Respiratory Disease	22	23.5	4.5	50.0	0.000	76.6	0.31
Infection and Parasitic Disease	18	17.9	0.0	38.9	0.008	76.2	0.24
Endocrine and Metabolic Disease	22	24.1	9.1	45.5	0.000	81.7	0.29
Kidney, Urinary, Male Genital Disease	34	33.3	17.6	52.9	0.000	87.5	0.38
Genetic Disorder and Congenital Deformation	1	7.5	0.0	100.0	0.000	52.0	0.14
Perinatal and Neonatal Disease	1	25.8	0.0	100.0	0.149	89.0	0.29
Dermatologic Disease	3	45.0	0.0	100.0	0.000	83.3	0.54
Disease of Ear, Nose, and Throat	3	16.4	0.0	100.0	0.081	53.0	0.31
Disorders of Eye and Adnexa	3	24.4	0.0	100.0	0.058	77.3	0.32
Gestational, Puerperal, and Postpartum Disease	1	62.5	0.0	100.0	0.000	90.0	0.69
Psychiatric Disorder	28	31.2	10.7	53.6	0.000	83.3	0.37

Note: 'ρ-value' was calculated for the hypothesis that the mean test score does not differ from the expected score of a random answer. The expected score for a student without any medical knowledge in the Test of Clinical Medicine is 18.2% because of R-type questions. R-type questions have more than five choices, and the expected score of 54 R-type questions is 4.1%. The comparison group in Korea is the group of students who took the test at the end of the 4th year in medical college.

5. Description of Students' Backgrounds

We conducted a short survey for the students at the end of the Test of Medical Knowledge. The survey questionnaire covers the basic information on demographic, academic and economic backgrounds. There were only two cases out of 260 where the test scores could not be matched with the survey data. However, after removing observations with missing values for relevant variables, only 183 observations are left in the data set for analysis. While the attrition of 30% due to missing values is not trivial, the difference in the mean between the total sample and the final sample seems to be small for all the variables. The summary statistics of the final sample is displayed in <Table 3-8> and <Table 3-9>.

Since the purpose of this section is to present a rough description of students' backgrounds, we do not distinguish students by their academic year. Regarding the demographic characteristics, the students are 22.4 years old on average, and 50% of them are female. In terms of physical condition, the male students are 7.6cm taller than the female and 9.2kg heavier than the female. The body mass index is 21.2 for the male and 19.6 for the female students.

The proportion of students who went to high school in Vientiane is 35% and the proportion of students living with their parents is only 33%, which suggests that quite a number of students are away from home. The majority of students are from the Lao ethnic group (79%), and the second largest group, Seng Saly, has the share of 6%. The average household size is 7.3 persons.

As for academic backgrounds, the mean percentage score of the test is 25.2%. About a half of the students is in the 6th year and also a half of the students are special students.[4] Around 97% of the students went to public high school (not shown).

In the test, students were given the questions both in Lao and English. The two sets are identical except that the English version has photos.[5] In the survey, we asked students which

4 There are two groups of students at UHS with respect to the admission. The regular students are those who are admitted by the recommendation by each province or by passing the entrance exam. The special students are those who are qualified by working as health professionals for a certain years or under other consideration.

5 This is done as an effort to reduce the cost. The English version was printed in color in Korea, while the Lao version was printed in black and white at UHS.

version they used more during the test. Most of the students reported that they used the Lao version for most of the time. The proportion of the students who used Lao version for more than 75% of the test is 87%. Since students are asked to refer to the English version for the questions with photos, the reported usage of the English version by students may include the case of reading the photos. In this sense, the proportion of usage of the Lao version may underestimate the actual usage.

The self-reported proficiency of language shows somewhat different pictures with respect to English. It is measured in five categories of very poor, poor, normal, good and very good. It turns out that students at the UHS have the strongest command in foreign languages in Thai, English and French in that order. The proportion of students whose proficiency level is normal or higher in Thai is 77%, and the proportion for English and French is 64% and 28%, respectively.

The reported usage of the English version in the test and the self-reported proficiency in English may be considered as not consistent with each other. However, it is likely that two measures show different dimensions. That is, the reported usage in the test involves the knowledge of medical terms and grammar, whereas the self-reported proficiency includes the familiarity with the spoken language and information from various sources including the internet.

Almost all the students have a mobile phone, and 84% of them have a computer. The expenditure over the last four weeks has a mean of 1,100 thousand kip (US$ 129) and a median of 600,000 kip (US$ 71).[6] For comparison, the GDP per capita of Lao P.D.R. in 2010 was US$ 984, that is, US$ 82 for a month.[7] Since the expenditure on the durables is likely to be excluded from the reported amount, the standard of living of the students seems to be higher than that for the average population. About one-fifth of the students worked for money during the past week, which suggests that a sizable proportion of the students are engaged in economic activity.

6 The exchange rate of US$1 = 8,500kip is applied.

7 GDP per capita in current prices in US Dollars, Data Source: International Monetary Fund (IMF)

<Table 3-8> Summary Statistics on Individual Characteristics (N=183)

Variable	Mean	Std. Dev.	Min	Max
Demographic Characteristic				
Age	22.44	2.39	19	39
Female	0.50	0.50	0	1
Height	161.60	7.27	140	184
Weight	53.34	8.36	36	80
Body Mass Index	20.37	2.49	14.69	29.38
High School in Vientiane	0.35	0.48	0	1
Living for himself/herself	0.44	0.50	0	1
Living with parents	0.33	0.47	0	1
Living with other relatives	0.22	0.42	0	1
Mother's Ethnic Group Lao	0.79	0.41	0	1
Mother's Ethnic Group Seng Saly (Phou Noy)	0.06	0.24	0	1
Household Size	7.30	3.99	2	28
Academic Characteristic				
Total Test Score (%)	25.21	3.79	17.31	38.96
6^{th} Year Student	0.49	0.50	0	1
Special Student	0.50	0.50	0	1
Language in Test: Lao 100%, English 0%	0.38	0.49	0	1
Language in Test: Lao 75%, English 25%	0.49	0.50	0	1
Language in Test: Lao 50%, English 50%	0.11	0.31	0	1
Language in Test: Lao 25%, English 75%	0.02	0.13	0	1
Language in Test: Lao 0%, English 100%	0.01	0.07	0	1
English: normal or above	0.64	0.48	0	1
French: normal or above	0.28	0.45	0	1

Variable	Mean	Std. Dev.	Min	Max
Thai: normal of above	0.77	0.42	0	1
Vietnamese: normal or above	0.02	0.13	0	1
Chinese: normal or above	0.02	0.13	0	1
Economic Characteristic				
Own a mobile phone	1.00	0.00	1	1
Own a computer	0.84	0.37	0	1
Expenditure over the last 4 weeks (kip)	1,099,945	4,416,510	30000	60,000,000
Worked for money during the past 7 days	0.20	0.40	0	1

Regarding the educational attainment of parents, fathers tend to have a higher level than mothers, and they are highly correlated. While, the proportion of fathers who have no schooling is 8% and that of mothers is 4%. The proportion of fathers who completed university is 36%, whereas that of mothers is 21%. The correlation coefficient of having a father with university degree and having a mother with the same degree is 0.49. Compared to the fact that the percentages of people with no school and university degree among population older than 15 years are 29.5% and 5.8% in 2010, the educational level of parents is higher than the average households in Lao.[8]

The survey includes the questionnaire on the ownership of a few kinds of household assets. Most of the households own a house (97%) and land (93%). The proportion of households owning a business building and an agricultural building is 10% and 5%, respectively, which reflects the occupation of the students' parents. About the half of the households have an automobile, while most of them have a motorcycle and 69% of them have a bicycle. However, the proportion of households with a tuk-tuk is only 4%. This suggests that motorcycle is the major transportation method. Over 90% of the households have a refrigerator, which is crucial in storing food. Therefore most of the households seem to meet the basic needs of housing, transportation and food.

8 Barro-Lee data set, http://www.barrolee.com/.

The questions on household expenditure and income were categorized into several groups. Since the household expenditure and income are highly correlated, only expenditure is discussed here. The proportion of households that have monthly expenditure less than 1 million kip (US$ 118 USD) is 16%, and the proportion of those with expenditure between 1 million kip and 2 million kip (US$ 235) is 21 %. The largest share (40%) of households has an expenditure over 2 million kip per month.

It should be noted that the share of no answers is quite high. The proportion of students who answered that they do not know the expenditure is 23% and it was 33% regarding income. Based on the observation that the incidents of not knowing the expenditure are correlated with ownership of assets, the observed distribution of expenditure is likely to underestimate the true one. Therefore, the median monthly expenditure is likely to be over 2 million kip.

<Table 3-9> Summary Statistics on Household Characteristics (N=183)

Variable	Mean	Std. Dev.	Min	Max
Father's Education				
No Schooling	0.08	0.27	0	1
Primary	0.19	0.39	0	1
Lower Secondary	0.09	0.29	0	1
Upper Secondary	0.08	0.28	0	1
Vocational Training School	0.20	0.40	0	1
University/Institute	0.36	0.48	0	1
Mother's Education				
No Schooling	0.04	0.21	0	1
Primary	0.28	0.45	0	1
Lower Secondary	0.09	0.29	0	1
Upper Secondary	0.12	0.33	0	1
Vocational Training School	0.25	0.43	0	1
University/Institute	0.21	0.41	0	1

Variable	Mean	Std. Dev.	Min	Max
Economic Characteristics				
Own a house	0.97	0.18	0	1
Own land	0.93	0.25	0	1
Own a business building	0.10	0.31	0	1
Own a agriculture building	0.05	0.23	0	1
Own a automobile	0.53	0.50	0	1
Own a motorcycle	0.95	0.22	0	1
Own a bicycle	0.69	0.46	0	1
Own a Tuk-Tuk	0.04	0.21	0	1
Own a refrigerator	0.91	0.28	0	1
Monthly Exp.: Lower than 500,000 Kip	0.03	0.16	0	1
Monthly Exp.: 500,000 ~ 1,000,000 Kip	0.13	0.33	0	1
Monthly Exp.: 1,000,000 ~ 1,500,000 Kip	0.10	0.31	0	1
Monthly Exp.: 1,500,000 ~ 2,000,000 Kip	0.11	0.31	0	1
Monthly Exp.: Over 2,000,000 Kip	0.40	0.49	0	1
Monthly Exp.: Don't know	0.23	0.43	0	1

6. Determinants of Test Scores and Relative Performance by Subject

Since the estimation of the evaluation model presented in section 2 requires more rounds of data collection, we will present in this section some indicative results from cross-section regression analysis. The results will help us understand what are the basic determinants of students' test scores in the absence of the program effects from the Dr LEE Jong-Wook—Seoul Project. Specifically, the relationship between academic performance and individual observable characteristics is examined, and the relative performance by subject is estimated. Among other

things, the results will help us identify factors that need to be regression-controlled when we do have the data for the difference-in-differences estimation of the program impact.

The regression model of determinants of the test score is the same as the one presented in section 2 except that it does not have time and subject dimensions. The dependent variable is the total percentage score in basic and clinical medicine and the independent variables are the students' individual and household characteristics. The estimation results are presented in <Table 3-10>. In case of the test score in Basic Medicine, age has a negative impact significant at 10% level and the difference of one year in age is associated with 0.38 percentage points, which is equivalent to one tenth of the standard deviation in the total score distribution. Female students tend to score 1.64 percentage points (roughly 0.43 standard deviations) lower than male students, and the difference is significant at 10% level. Special students tend to have lower scores than regular students but the difference is not significant.

Body mass index exhibits a nonlinear impact, and it is positive below 19.3 and negative above 19.3. The impact of body mass index is significant at a conventional level, and the kink point is close to the mean in the sample (20.4). With respect to the language proficiency, only the command of French turns out to be associated with a higher performance. The students whose level of French is normal or above in his or her own assessment tend to have a score 1.78 percentage points (i.e. 0.47 standard deviation), and the coefficient is significant at 10% level.

The ethnicity and education level of mother do not have any significant impact. The latter was a bit surprising given that there is a strong association between mother's education and children's academic performance (Carneiro et al., 2011). One interpretation is that this association may not hold for a group of students in the same university. Own and household expenditure variables do not exhibit any significant impact, which is another interesting aspect of the sample.

In case of Clinical Medicine, the coefficients on age, sex and body mass index are no longer significant. On the other hand, the proficiency in Thai language is associated with higher performance although its degree is smaller than that of the French. Some of household expenditure variables have a significant impact, but there seems to be no general association.

<Table 3-10> Determinants of Test Scores

	(1) Test Scores in Basic Medicine		(2) Test Scores in Clinical Medicine	
Variables	Coef.	S.E.	Coef.	S.E.
Age	-0.3808*	(0.2052)	-0.2223	(0.2091)
Female	-1.6422*	(0.8795)	0.6318	(0.8438)
Special	-0.7105	(0.8975)	-1.1302	(0.8880)
BMI	3.7961**	(1.6191)	-1.6923	(1.7337)
BMI squared	-0.0983**	(0.0376)	0.0365	(0.0397)
English: normal or above	0.7668	(0.9763)	0.4916	(0.7736)
Thai: normal or above	-0.2533	(0.9810)	1.7034*	(1.0068)
French: normal or above	1.7776*	(0.9245)	2.3413***	(0.8803)
Mother's ethnic group: Lao	-0.0166	(1.1202)	-0.8663	(1.1209)
Mother's education: Primary	-0.8527	(1.5056)	0.3931	(1.4898)
Mother's education: Lower secondary	-0.3615	(1.5534)	4.0650	(2.4831)
Mother's education: Upper secondary	0.6748	(1.3365)	1.8265	(1.9920)
Mother's education: Vocational	-1.3112	(1.5613)	0.2344	(1.8393)
Mother's education: University	-2.2583	(1.6442)	-0.0271	(2.0224)
Household size	-0.0931	(0.0880)	-0.1632	(0.1264)
Log own expenditure (mth)	-0.2731	(0.4312)	-0.1112	(0.5465)
HH exp.: 0.5~1 mil. kip (mth)	-2.0423	(2.7260)	5.3619**	(2.5673)
HH exp.: 1~1.5 mil. kip (mth)	-1.3081	(2.6994)	4.0218	(2.4663)
HH exp.: 1.5~2 mil. kip (mth)	0.3006	(2.8383)	4.3587*	(2.3756)
HH exp.: above 2 mil. kip (mth)	-0.6062	(2.6190)	3.5297	(2.2296)
HH exp.: Do not know	-1.5366	(2.5854)	3.0062	(2.1197)
Constant	3.8309	(17.1396)	46.7113**	(22.2013)
No. of Observation	94		89	
R-squared	0.345		0.318	

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Next, the relative performance among subjects is estimated. The statistical model is the same as before except that the dependent variable is a test score in each subject and that the explanatory variables include the dummy variables for different subjects. The coefficients on the dummy variables are interpreted as the average score after the individual characteristics is controlled. Both absolute and relative levels of performance are considered. As a relative measure, the test score subtracted by the mean of the comparison group and the ratio of the test score to the mean of the comparison group are employed.

The estimation results for the Test of Basic Medicine are shown in <Table 3-11>. The discussion below focuses on the coefficients on dummy variables since those on other variables are qualitatively similar to the results in column (1) in <Table 3-10>. By the absolute measure, the highest performance is achieved in microbiology, and the lowest in pharmacology and parasitology. By the relative measures, the highest performance is observed in biochemistry and physiology, while no significant difference is detected among other subjects.

The estimated performance relative to the comparison group is not consistent across different measures. For example, by the measure of difference in column (2) of <Table 3-11>, pharmacology has a higher mean than anatomy, but not by the measure of ratio. Also by the measure of ratio, microbiology has a higher mean than anatomy, but no by the measure of difference. Therefore, the order of ranking by the relative measure needs to be interpreted with a caution.[9]

The results for the Test of Clinical Medicine are presented in <Table 3-12>. By the absolute measure, other fields and surgery have a highest score, while the obstetrics & gynecology has a lowest score. This ranking is also preserved by the relative measures and, in addition, pediatrics has a higher score than internal medicine. Again there is an inconsistency in relative measures. That is, psychiatry has a higher score than internal medicine by the difference in scores, but not by the ratio of scores.

The relative performance among subjects estimated in <Table 3-11> and <Table 3-12> is similar to that presented in <Table 3-4> and <Table 3-6>. However, they are not exactly the same, and to the extent that the magnitude of difference also matters, controlling individual characteristics seems to be important in measuring the relative performance among subjects.

9 A more precise measure of relative performance is the score standardized with the mean and standard deviation of the comparison group. This is to be done when the information on the distribution of score of the comparison group is obtained.

<Table 3-11> Test Score of Basic Medicine by Subject

Basic	(1) Score		(2) Relative Score (Difference)		(3) Relative Score (Ratio)	
Anatomy	-		-		-	
Physiology	0.2128	(1.0447)	7.1128***	(1.0447)	7.4006***	(2.1570)
Biochemistry	-0.5775	(0.9066)	9.3225***	(0.9066)	9.3060***	(1.8885)
Pathology	0.6383	(0.9970)	-1.4617	(0.9970)	-0.6055	(1.8450)
Pharmacology	-3.7386***	(0.9412)	1.6614*	(0.9412)	-2.6125	(1.8789)
Microbiology	5.0152***	(1.0951)	-1.2848	(1.0951)	3.5494*	(1.9335)
Parasitology	-3.2624**	(1.2913)	-0.0624	(1.2913)	-3.5861	(2.5566)
No. of Observations	658		658		658	
R-squared	0.163		0.257		0.138	

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1 All the explanatory variables in <Table 3-10> are also included.

<Table 3-12> Test Score of Clinical Medicine by Subject

Clinical	(1) Score		(2) Relative Score (Difference)		(3) Relative Score (Ratio)	
Internal Medicine	-		-		-	
Surgery	2.9499***	(0.7043)	9.7499***	(0.7043)	6.5032***	(0.8880)
Pediatrics	-0.6546	(0.8140)	6.7454***	(0.8140)	2.1131**	(1.0389)
Obstetrics & Gynecology	-9.0084***	(0.8691)	-4.5084***	(0.8691)	-9.5381***	(1.0784)
Psychiatry	0.4940	(0.8065)	2.7940***	(0.8065)	1.4655	(0.9817)
Other Fields	4.1894**	(1.6255)	17.3894***	(1.6255)	11.6002***	(2.2607)
Preventive Medicine	1.0011	(0.8191)	1.2011	(0.8191)	1.2621	(0.9839)
No. of Observations	623		623		623	
R-squared	0.240		0.441		0.281	

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1 All the explanatory variables in <Table 3-10> are also included.

7. Concluding Remarks

According to the 1st round of the MEAC Test of Medical Knowledge, for basic medicine, the level of the performance by the students at UHS is about a half of what the comparable students in Korea achieved, and for clinical medicine, the performance level is about a third of that in Korea. It should be noted, however, that the means of total score are significantly different, in the statistical sense, from the hypothetical means that we would expect from randomly chosen answers.

The performance level at UHS relative to students in Korea varies across different subjects. In the Test of Basic Medicine, the highest performance is achieved in biochemistry and physiology by the relative measures. In the Test of Clinical Medicine, other fields, surgery and pediatrics have the highest scores in order, while the obstetrics & gynecology has a lowest score.

Although there are serious challenges in attributing the difference in the performance by students in Lao and Korea to various factors, the results in the study serve as one quantitative measure of academic performance. The identification of the program impact will be the main focus of the analysis in the subsequent years. A careful collection of the data on experience and teaching activity of faculty members is required.

One limitation of the baseline data is that the participation rate of the test was quite low. A formal analysis on the potential selection bias is to be conducted when the relevant data are obtained. At the same time, the efforts to promote the participation by students need to be made for the next round of test in a way that the consistency of the test is preserved.

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Appendix3-1: Test Hours for 1st Round Test of Medical Knowledge at UHS

<Table 3-A1> Test of Basic Medicine

Class	Time	No. of Questions
Orientation	08:30 - 09:00	
Class 1	09:00 - 10:10	60
Class 2	10:30 - 11:55	70
Lunch	11:55 - 12:55	
Class 3	13:10 - 14:20	60
Class 4	14:40 - 16:05	70

<Table 3-A2> Test of Clinical Medicine

Day	Class	Time	No. of Questions
Day 1	Orientation	8:30 - 09:00	
	Class 1	09:00 - 10:30	75
	Class 2	11:00 - 12:10	55
	Lunch	12:10 - 13:10	
	Class 3	13:20 - 14:45	60
	Class 4	15:15 - 16:40	60
Day 2	Orientation	8:30 - 09:00	
	Class 5	09:00 - 10:20	58
	Class 6	10:50 - 12:10	56
	Lunch	12:10 - 13:10	
	Class 7	13:20 - 14:40	58
	Class 8	15:10 - 16:30	58

Chapter IV

Minnesota Program in Medical Education in Korea: A Case Study of Technical Assistance

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Minnesota Program in Medical Education in Korea: A Case Study of Technical Assistance

1. Introduction

There can be little doubt that foreign assistance was invaluable in aiding Korea's survival in the tumultuous years following its liberation in 1945 and the devastating Korean War in 1950. Korea received massive amounts of foreign aid, nearly US $13 billion in economic and military assistance between 1945 to 1975, most of it from the US, and most of it in the form of grants. Foreign aid provided essential humanitarian relief; but it also went into investments in infrastructure as well as human capital development in health and education, the basic fundamentals that arguably made economic takeoff possible in the mid 1960s.

A considerable amount of foreign assistance in the decade following the end of the Korean War in 1953 went into relief and post-war reconstruction in Korea, left war-torn after three years of brutal internecine war with North Korea. After Korea's physical infrastructure was considerably rebuilt, economic assistance focused on upgrading Korea's technical manpower. An estimated US $100 million went into education and training during this period.[10] The foreign assistance in education was initially administered by the Armed Forces Aid to Korea (AFAK)

10 From "A History of U.S. Assistance to Korean Education: 1953 to 1966," by Herbert Wesley Dodge in 1971 on p. 270.

and United Nations Korean Reconstruction Agency (UNKRA) during the early years of post-war reconstruction. It was then transferred to the International Cooperation Administration (ICA).[11] The goals of the assistance efforts for Korean education after 1953 were rather comprehensive: classroom construction, secondary and vocational education, teacher training, and higher education.

This chapter carries out a case study of the Minnesota Program, a US technical assistance program in Korean higher education, with a particular focus on medical education. The Minnesota Program supported technical assistance efforts through collaboration between Seoul National University (SNU) and the University of Minnesota (University of Minnesota) under the aegis of the ICA over the course of 7 years (1954-61), and represented the single largest technical assistance program in Korea at the time. The program sought to upgrade and modernize Korea's higher education. A main element of the Minnesota Program was sending Korean instructors, technicians and scientists, to the US and other parts of the world to receive technical assistance. Moreover, US advisors were also sent to Korea to provide consultation in the implementation of western systems and methods in education and practice.

The primary objective of this study is not so much to evaluate whether the technical assistance was effective in upgrading Korea's higher education, as the success of the program and of US assistance overall in rebuilding and upgrading Korean education has been well documented. Instead, the objective is to better understand the factors behind its success, and to draw key insights and general lessons for designing and implementing future technical assistance and capacity building programs in Korea and elsewhere for greater development effectiveness. We believe this case study serves an important policy goal, as Korea searches for ways to upgrade and expand its technical assistance programs as an emerging donor in the international development community.

The chapter begins with a brief survey of the existing studies that examined the impact of US assistance on Korean higher education, specifically at the SNU College of Medicine. This section also reviews some qualitative reports filed at the ICA prepared by participants involved in the implementation of the program. The next section provides a brief history of Korean higher

11 The agency for international development cooperation later became the US Aid Administrator after the Foreign Assistance Act was passed in 1961.

education in medicine since 1900 and additional backgrounds on the collaboration between the US aid agency and US universities in carrying out technical assistance activities during the 1950s and 1960s. The following section examines in detail the way the program was designed and implemented. Then we proceed to discuss current technical assistance activities carried out by the Korean agencies in Lao PDR and make a comparison to Korea's past experience as a recipient of technical assistance. The chapter concludes by drawing insights and general lessons on the design and implementation of technical assistance programs.

2. Impact of Technical Assistance under the Minnesota Program

No doubt US assistance had a considerable impact on Korean education both in the quantity and quality of education: thousands of classrooms were rebuilt or newly constructed; western curriculums and methods of teaching were introduced; numerous secondary and vocational institutions were founded; and higher education was upgraded. Top priority was put on rebuilding and upgrading Korea's higher education. Nearly US $19 million of aid was invested during 1953-1967 via technical cooperation activities between Seoul National University and University of Minnesota under the ICA' Minnesota Program. By 1961, a total of 225 Korean participants studied in the US, 54 of whom received an MA and 11 a Ph.D. Supplemental technical assistance was provided by US advisors in Korea, and material assistance was provided in the form of new and repaired facilities, equipment, supplies, and books. As a result, SNU was rebuilt and equipped with new facilities while new systems and methods of teaching were introduced in the Colleges of Agriculture, Engineering, and Medicine.

Besides the physical investments in education supported by aid, the impact of the technical assistance programs like the Minnesota Program on Korean education and development has been the subject of many studies. Mason et al. (1980) writes: "the most significant, and successful, involvement of American aid in education came with the strengthening of undergraduate faculties and the development of graduate level program in … agriculture, and medicine." In a comprehensive study of US assistance on Korean education, Dodge (1971) writes: "In higher education as a result of the US efforts, SNU's Colleges of Agriculture, Medicine, and Engineering were upgraded to the point where the programs there would compare favorably to

those of high ranking universities anywhere in the world."[12] Indeed, the US aid administrators were also in high praise of the programs which was assessed to have significantly supported Korea's development, judging them to be largely effective and beneficial. For example, nearly 50% of 676 Koreans out of a total of 942 over four years that returned to Korea after receiving training were evaluated as having produced outstanding results while 35% were assessed to be moderate and 15% non-productive.

In a study of US assistance on Korean medical education, Wang-Joon Lee (2006) also concluded that the program's objectives were achieved successfully in upgrading Korean higher education and the practice of medicine in general. The program was hugely successful in modernizing Korea's medical education system in the sense that newly trained professors helped to introduce modern methods and practices of medical education. Korea's medical education system underwent standardization based on American style system, which replaced the older Japanese style system. Whereas the older system focused on theory and rote learning, the newly introduced system emphasized clinical practice and experimentation. Indeed, many of graduates at SNU College of Medicine were able to pass the US Examination of Certification for Foreign Medical Graduates (ECFMG) during the 1960s. The traditional didactic teaching methods were replaced by clinical, case-based education with more emphasis on practical training such as bed-side practices. New practices in medicine were reformed or established such as anesthesiology, radiology, pathology and so forth. In addition, an internship and resident training system was adopted and medical research capacity was upgraded. Furthermore, a nursing school and a public health school were newly established. As the original planners of the program had hoped that SNU could be a beacon of higher learning, modern standards and practices and medical education spread very quickly once the newly trained SNU medical professors returned to Korea. Much of the newly acquired knowledge and methods were disseminated through academic associations, and lecture seminars. Indeed, many of the SNU medical professors went on to hold prominent positions at other medical schools, thus facilitating the spread of knowledge.

That the program, as Wang-Joon Lee (2006) argues, became in a way a victim of its own success establishes how successful the program itself was. The Korean healthcare sector did experience a massive exodus of newly trained medical doctors, educated and qualified to

12 "A History of U.S. Assistance to Korean Education: 1953 to 1966" by Herbert Wesley Dodge 1971, Ph.D.. dissertation.

international standards, as they left Korea to find work overseas, largely to the US. Starting from 1956, the share of SNU medical graduates immigrating to the US gradually increased before peaking in 1964, when nearly 60% of the graduating class trained at SNU immigrated to the US. <Table 4-1>[13] The high rate of migration to the US continued through the early 1970s before falling sharply by the mid-1970s. Indeed, SNU College of Medicine was not the only institution that experienced high outmigration of graduating students overseas, as seen in the number of students that went to overseas in <Table 4-2> for a number of medical colleges.[14]

<Table 4-1> Demography of SNU College of Medicine Graduates during 1956-75 as of 2002

Year of Matriculation	Number of Graduates	Graduates Overseas		Graduates in Korea	Deceased	Other
		US (%)	Other			
1956	122	27 (22)	2	54	36	3
1957	150	30 (20)	2	85	27	6
1958	139	50 (40)	-	67	19	3
1959	149	54 (36)	2	68	23	2
1960	142	54 (38)	4	58	18	8
1961	135	57 (42)	1	58	15	4
1962	123	56 (45)	1	53	11	2
1963	131	74 (56)	-	44	11	2
1964	128	74 (58)	1	41	11	1
1965	113	58 (51)	-	48	7	-

13 To the extent possible, several factors can be attributed to causing this "brain-drain" of Korean medical practitioners. First, employment opportunities in the university hospitals were limited. Indeed, many of the junior staff say at the SNU hospital did not have the full-time status with the expectation of getting paid.Second, western medicine was still a relatively under-recognized method of treatment compared to traditional Asian medicine. Hospitals were even feared by ordinary Koreans as "places one goes to die." Moreover, low per capita income during thos years meant that people could not afford medical costs. Hospitals suffered from a low occupancy rate at less than 50% in 1960s. Also, Korea's social safety net was woefully underdeveloped; in that there were no medical insurance programs or measures to help pay for healthcare costs. Another factor that accelerated this mass emigration was a change in the US immigration policy. During the late 1960s and early 1970s, the US implemented an immigration policy aimed at attracting newly trained physicians to address the domestic shortage of qualified physicians caused by the expansion of Vietnam War. However, the US would reverse its immigration policy in the late 1970s, which slowed the outflow of physicians from Korea. Around this time, social insurance systems were being introduced in the country with the establishment of national health insurance system, scope and size of which grew over time.

14 This pattern of brain drain was also found in other fields of study not associated with the Minnesota Project, as many students that had gone to the US and received PhDs did not return to Korea. Nearly 85-90% of Koreans who obtained Ph.D.s in science and engineering in the US did not return to Korea.

Year of Matriculation	Number of Graduates	Graduates Overseas		Graduates in Korea	Deceased	Other
		US (%)	Other			
1966	117	51 (51)	-	55	9	2
1967	124	60 (48)	-	52	10	2
1968	100	52 (52)	2	43	3	-
1969	103	47 (45)	-	50	6	-
1970	81	39 (48)	-	40	1	1
1971	107	51 (47)	-	53	1	2
1972	99	37 (37)	-	57	3	2
1973	97	21 (22)	-	71	3	2
1974	97	16 (16)	-	79	1	1
1975	109	15 (14)	-	89	4	1
Total	2,366	923 (Ave: 39)	15	1,166	219	44

Source: Lee, Wang-Joon (2006, p188), The Influence of Minnesota Project on the Korean Medical Education

<Table 4-2> Diaspora of Korean Medical Physicians (As of Nov 15, 1974)

Country of Residence	Number	Alma Mater	Number
US	2,834	Seoul National University	786
Canada	72	Yonsei University	887
Japan	65	Catholic University	250
Malaysia	18	Korea University	481
West Germany	17	Ewha University	310
Jamaica	22	Chonnam University	195
Uganda	34	Kyungbuk University	382
Other	73	Pusan University	44
Total	3,135		3,135

Note: The data was prepared by Berglund based on the alumni information from medical schools.
Source: Lee, Wang-Joon (2006, p189), The Influence of Minnesota Project on the Korean Medical Education

Finally, a review of qualitative reports prepared by implementers and participants of the Minnesota Program also show that many assessed that the program generally had a positive impact on Korean higher education and medical sector. An American nurse that acted as an advisor to the nurses in the SNU College of Medicine and hospital observed that the attitude of doctors changed after studying in the US, the status of nurses was improving along with status of women, and doctors recognized that it was more efficient for nurses to manage the hospital wards.[15] Moreover, the opportunity for medical staff to study and observe nurses in the US had greater impact on changing the status of nurses as a profession, as nurses had been considered of a lower status serving menial functions in Korea at the time.

The assessment results found in the reports for the SNU faculty members by their academic advisors at the University of Minnesota make a salutary reading. The advisors were mostly of the opinion that their students from Korea were interested in the study and showed some level of aptitude, and that they were benefiting from attending classes and learning from observations. The Korean trainees attended the classes regularly and worked diligently. However, their participation in in-class discussions was limited. Indeed, the majority of the trainees chose to audit classes instead of registering for credits, and failed to take exams or write a thesis. Thus the University of Minnesota advisors emphasized that it was nearly impossible to make any rigorous, formal assessment of the effectiveness of learning by the students under their charge. It is telling that nonetheless they were able to make such a transformative impact upon their return to Korea for upgrading of medical education and practice. Perhaps it is one of the lessons worth remembering as Korea tries its own capacity building programs of a similar nature now.

15 A technical High School of Nursing was established at SNU in 1945. Then a college level nursing program was instituted at SNU College of Medicine in 1959. There were a total of 24 nursing schools, 9 in Seoul, three of which were at the college level, located at SNU, Ewha, and Yonsei.

3. Overview of Bilateral Technical Cooperation: "To assist, not displace"

A considerable amount of US aid went into education early in Korea's development; a great deal was invested to expand access to primary education and to civic schools for older students that no longer qualified for compulsory education. Indeed, civic schools for adults that taught basic reading, writing and math, were critical in sharply reducing the illiteracy rate among adults within a very short amount of time. In 1945, an estimated 78% of Koreans were illiterate, meaning they could not read or write in Hanguel or in any other language. Before the modern times, formal education was a privilege restricted to the ruling elite. Under the Japanese colonial rule, education was limited to the fortunate few, and those who did attend school received education mostly in Japanese.

By the 1960s, major progress had been made in providing access to primary and middle school education in Korea. Indeed, the Ministry of Education claimed achieving a literacy rate of nearly 90% in 1968 for people over the age of 6 years[16] Foreign assistance played a significant role in the remarkable expansion of education from 1945 to 1965, as seen below in <Table 4-3>.

<Table 4-3> Expansion of Korean Education during 1945 to 1965

	Number of Institutions		Number of Teachers		Number of Students	
	1945	1965	1945	1965	1945	1965
Primary Level	2,834	5,265	19,729	79,613	1,366,024	4,955,104
Secondary Level	165	2,432	3,219	36,864	84,572	1,258,088
Higher Level	19	162	1,490	6,801	7,819	141,636

Source: Dodge 1971

16 The standard of literacy was measured by the ability to identify and write the 24 letters of the Hangul alphabet.

Before Korea's liberation in 1945, access to higher education remained limited to the point of practical exclusion. The Imperial University, which would eventually be reorganized into SNU, was established by the Japanese. Enrollment at the University during Japanese rule was very selective and limited to a small percentage of Koreans.[17] After Korea's liberation, a number of national and provincial universities and colleges were established. Most of the increase came from the rapid growth of private, degree-granting colleges. By 1952, the number of higher learning institutions totaled 42 and the number of student enrollment totaled 33,542 (3,958 women).[18] Despite the expansion of higher learning, Korea's university system was in need of urgent reform to improve the quality of education. Moreover, Korea suffered a huge deficit in the number of skilled workers and technicians after the departure of the Japanese which held most of the skilled jobs during their occupation. As such, top priority was put on upgrading Korean higher education and research, and secondary and vocational education to support Korea's economic development.

To build up Korea's technical capacity, considerable amount of financial and technical assistance went into upgrading Korean secondary and vocational education as well as in institutions of higher learning. A good deal of technical assistance was carried out through US technical cooperation programs under "university contracts" which enlisted the participation of US universities and technical institutions to facilitate the exchange of knowledge and skills. The basic objectives of the technical cooperation program were: expansion of education in fields of engineering, medicine, agriculture, and public or business administration; support of specific services or industries, expansion of research, and training of technical manpower. During 1955-59, a total of 1,421 Koreans studied in the US.

One such university contract was the Minnesota Program, which provided technical and material assistance to the SNU between 1954 and 1961, which benefitted the Colleges of Agriculture, Engineering, and Medicine of Seoul National University. Later on, technical cooperation was expanded to include the fields of nursing, veterinary, and public administration. Under the ICA-University of Minnesota program, Korean instructors and administrators studied

17 Yonsei University, formerly known as Chosen Christian University, is considered as the oldest established university in Korea. It was established by early missionaries.

18 A report on Korea's higher education prepared in 1959 estimated that Korea had about 56 colleges and universities of varying degree located across the country with 88,000 students.

and trained at the University of Minnesota. A total of 226 SNU instructors (including 77 from the College of Medicine) studied at the University of Minnesota. Also, a total of 59 US experts and advisors (including 11 advisors for the College of Medicine) were dispatched to SNU to act as on-site consultants, to provide assistance in the implementation of new systems and methods adopted by Koreans, under the banner of "assist and not displace." Material assistance was also provided to rehabilitate and improve facilities and to install new equipments.

One particular program under the Minnesota Program focused on the modernization of Korea's medical education system, a leftover of Japanese colonial rule, to improve the standards of medical training and healthcare practices. Under the program, war-damaged medical facilities were repaired; new facilities for training healthcare providers were built including nursing and public health schools; and modern medical equipment, systems and practices were introduced at the SNU College of Medicine. But more importantly, this program assisted in the training of professors at the SNU College of Medicine.

In 1960, University of Minnesota was one of 53 US colleges that participated in the ICA program, which totaled nearly US$ 100 million, with 96 contracts covering 33 countries. To maximize the effectiveness of the program, countries and universities were matched based on various criteria that best suited their conditions. The Seoul National University benefited from the program which increased the school's profile and provided additional revenues of 200 thousand dollars per year (Keun-Won Chu, *80 years of Not Looking Back*, 1998, p. 96, and Lee Wang-Joon, 2006, p37)

<Table 4-4> Technical Cooperation through US Universities

	US colleges that provided technical assistance
India	Columbia, Berea, Illinois, Kansas State, Missouri State, Tennessee, Wisconsin
Pakistan	Colorado, Indiana, Southern California, Texas A&M, Washington State
Korea	George Peabody, Minnesota, Washington State, Indiana, Syracuse, Oregon
Indonesia	California, Indiana, Kentucky
Japan	Massachusetts, Michigan State
Vietnam	Georgia, Wyoming
Afghanistan	Columbia, Wyoming

	US colleges that provided technical assistance
China	Michigan State, Purdue
Philippines	New York State
Sri Lanka	Texas A&M
Thailand	Colorado, Hawaii, Indiana
Cambodia	Georgia
Iran	Brigham Young, Southern California, New York State, Utah State
Turkey	Columbia, Georgetown, Nebraska, Spring Garden Institute
Morocco	Delado Trade-Tech Institute
Tunisia	Delado Trade-Tech Institute
Liberia	Cornell, Prairie View A&M
Nigeria	Indiana, Michigan State, Ohio, Western Michigan
Ethiopia	Oklahoma State
Kenya	Earham
Rhodesia	Delado Trade-Tech Institute
Uganda	Delado Trade-Tech Institute
Guatemala	Kentucky
Costa Rica	Louisiana State
Columbia	Tulane
Panama	Tennessee
Ecuador	Houston
Peru	North Carolina State
Chile	Chicago, Cornell, Pittsburgh, Lelond (check!), Stanford
Paraguay	Buffalo, Montana Michigan State, Purdue, Southern California
Brazil	Johns Hopkins, Michigan, Michigan State, Purdue, Southern California
Austria	New York University

Source: ICA. ICA, *Technical Cooperation through American Countries*, ICA Office of Public Reports, Washington DC 1956. Recited from Lee Wang-Joon (2006, p400)

By the end of 1963, the technical assistance activities carried out under US university contracts amounted to more than US $158 with a total of 72 universities performing education and technical assistance under 129 contracts with ICA.[19] The number of universities involved and of foreign students enrolled in the programs increased every year since the start of the program. During 1962-1963, nearly 64,000 foreign students were enrolled at US institutions of higher learning. Among the foreign students, 4,619 foreign students were in fields related to medicine and public health. Nearly 40% of the students were self supported, while 24% were supported by US universities, 15% by private organizations, 10% by US aid and 6% by foreign governments. More than 1,000 foreign medical scholars or faculty studied in the US during 1962-1963, many funded by US aid. Based on percentages, 38% of all foreign medical graduates working in the US came from Asia and Far East.[20]

<Table 4-5> Summary of Technical Cooperation Programs under US University Contracts

	December 1961	March 1964
Number of US University Contracts	186	252
Number of US Universities involved	87	119
Number of Contracts involving overseas activity	101	131
Number of US Universities in overseas projects	58	71
Number of US Universities with training contracts	46	72
Funding of University Contracts (millions)	US $ 121	US $ 177

Source: Dodge 1971

19 AID and Universities: Report to the Administrator of US AID. By John W. Gardner, p. 1.

20 US AID for International Development, The Universities and Medical Education in Developing Countries, p. 8.

4. History of Korean Medical Education: War and Reconstruction

Prior to the engagement under the Minnesota Program, Korean medical education had mostly been based on the "systems and practices used in Japan, as modified from those used in Germany."[21]

<Table 4-6> Korean Medical, Dental, and Pharmacy Colleges in 1952

	Location		Enrollment as of Oct. 1952	
	Permanent	Korean War	Male	Female
Seoul National University College of Medicine	Seoul	Busan	444	
Seoul National University Dental College	Seoul	Busan	280	
Seoul National University Pharmacy College	Seoul	Busan	294	
Chunnam University Medical College (CholaNamdo)	Kwangju	Kwangju	530	
Kyungpuk University Medical College (Kyongsang)	Taegu	Taegu	397	
Ewha Women's University	Seoul	Busan		411
Severance Medical College (Later Yonsei University)	Seoul	Seoul	79	
Seoul Women's Medical College	Seoul	Busan Seoul Kwangju Severance		255

Source: Dodge 1971

21 From Final Report of Observations and Recommendations Concerning the College of Medicine SNU by James H. Matthews, M.D. Advisor in 1958.

During the Korean War, the SNU College of Medicine was forced to evacuate to Busan, scattering students and teaching staff all over the country. Only the medical school in Kwangju could operate during the war in its original location. The other colleges had to relocate to temporary accommodations. Many staff members volunteered for military service as medical officers. The school stopped operations for nearly one year and reopened in 1951. Some medical staff and students were abducted when North Korea retreated, some managed to come back but some went missing. During the war, the university's buildings were used by US Armed Forces from 1952 until 1954.

Timeline of SNU College of Medicine:

- 1899 Founded as Kwang Jae Won by government under King Kojong

- 1907 Reinstituted as Dai Han Hospital

- 1910 Renamed as Chosun Colonial Government Hospital by Japanese

- 1926 With the foundation of the Keijo (Seoul) Imperial University, the hospital became part of the Imperial University, one of the six imperial universities in the Japanese empire.
  1927 "Seoul Junior Medical College" was reformed as a four-year school and linked to Keijo Imperial University College of Medicine.

- 1945 Seoul National University College of Medicine was organized under Act 102 of US Military Government. It formed one of 12 colleges of SNU.

After the Korean War, nearly 75% of the already small number of 99 hospitals were destroyed or damaged, and estimated 5 million Koreans were without modern healthcare.[22] The WHO/UNKRA Health Planning Mission assessed Korea's healthcare and concluded: "highest national priority should be given to the immediate and full restoration of educational activities." Moreover, medical doctors were in great demand by the military as Korea had to keep wartime readiness after the Korean War. Despite the signing of ceasefire, the years after the Korean War was a period of great uncertainty and instability. The fear of another war and the threat of communism were widespread. The SNU College of Medicine had a small clinical hospital and a staff that included 20 professors, many of whom were on leave serving in the military at the time.

22 From "Background of US Economic Aid to Korea"

5. Upgrading SNU's Medical College

The Korean War had left the institutions of Korean higher education war-shattered. Many of the schools suffered massive damages to their facilities, a lack of trained and qualified instructors, and a shortage of books, labs, and supplies. To rebuild and upgrade Korea's higher education, the Korean government sought the assistance of the US in 1953. One of the first proposals was presented by Dr. L. George Paik, who was the former Minister of Education and later President of Yonsei University. The proposal intended to assist Korea's four major private universities including Ewha, Korea University, Severance Medical College, and Yonsei University, with US assistance used to secure affiliations with partnering US universities. But the proposal was significantly changed by the Korean government, which gave priority to the SNU. It was hoped that the SNU would develop into "a national center for high level leadership training for Korea" where the benefits accumulated by the SNU would be passed on to other institutions. Until then much of US assistance in higher education went into classroom construction. However, the US and Korea realized that it was necessary to rebuild and upgrade Korean medical education and medical sector to support rehabilitation and development. As such, the FOA (Foreign Operations Administration with the authority to be transferred to the ICA later) secured one single master contract with the University of Minnesota to upgrade SNU in the fields of agriculture, engineering, and medicine.[23]

The technical cooperation program included three main activities: the education and training of Koreans in Minnesota, a counterpart program, and material assistance. So the objective of the program was to send Korean instructors to the US to receive training at University of Minnesota and then have US advisors sent to Korea to serve as "on-site consultants" to assist in the institution of American based administration, teaching methods, and medical systems and practices. This was at the heart of the technical assistance cooperative project between SNU and University of Minnesota under the ICA.

23 The three required fields limited the choice of US universities, which was narrowed down to Minnesota and Ohio State. Minnesota was believed to have been selected partly due to the relationship between Minnesota and Harold Stassen, the FOA head, who was formerly the Governor of Minnesota, and partly due to the fact that Minnesota's engineering school also offered a marine engineering program, which Ohio State did not.

To ensure effective administration, a master contract was signed between University of Minnesota and the ICA, which provided administrative and financial support. The contract included the scope of technical activities to be performed by the University of Minnesota and included stipulations such as 1) design and implementation of the program was to be carried by University of Minnesota 2) a course program for the deans of SNU was to be included, 3) staff and consultants were to be sent to work in Korea, 4) University of Minnesota assessed the buildings and equipments needs in Korea in consultation with SNU officials, 5) University of Minnesota were to prepare a report with detailed findings and recommendations on the rehabilitation of SNU for submission to ICA. (See Appendix 1) The contract also specified that University of Minnesota would prepare and submit to the FOA semi-annual progress reports and the final report after the completion of the activities.

A key part of the cooperation was making sure that the leadership of the SNU were educated and trained, basically to raise awareness amongst deans, so that they would be well primed to support the long term goal of upgrading Korean medical education. This was to make sure that the senior management would become agents of change instead of obstacles to reform and progress. Before the launching of the main program, the dean of the Medical College was sent to University of Minnesota to receive an intensive 6-month program to study and observe the medical curriculum and facilities, and to engage in discussions with University of Minnesota faculty. (Wang-Joon Lee, 2006, p39) This showed the commitment and focus put on changing the mindset of the top leadership at the SNU. This contract effectively gave University of Minnesota "substantial portion" of the design and implementation of the technical assistance program on behalf of the US aid agency. Indeed, University of Minnesota secured the contract on the condition that the ICA and Korean government would not interfere at all on education related decisions, according to Lee Wang-Joon (2006, p40).

About 80% of the SNU teaching staff had been sent to the US for training in the US for a period of three months to four years so that they could return to Korea to upgrade the medical education system, based on American standards. Basically, the program provided two different forms of modalities for training: short and long term. <Table 4-7> shows the composition of SNU faculty members that participated in either short-term consultation or long-term degree program. The first group (short-term consultation program) which largely consisted of senior faculty members that held administrative positions at SNU was supposed to be for 6-12 months

to study and observe US medical system and practices. The second group (long-term degree program participants) consisted of younger faculty members who were expected to continue teaching and take up leadership position in the future after returning from studying in the US. As such, the training period for younger faculty was longer to run between one and three years, and their training more intensive. However, many of the younger faculty members ended up staying longer for up to four years as seen in <Table 4-8>. As noted before, a key provision in the scope of the technical activities was sending selected junior staff or faculty members at the SNU to University of Minnesota for long-term degree program. As seen in <Table 4-9>, a large number of junior faculty members participated in long-term degree programs, many of whom were sent in the period between 1955 and 1959. This is quite remarkable considering the *patriarchal, seniority-based* culture prevailing in Korea.

Since the senior faculty was also trained to recognize the importance of instituting new methods and practices, they were supportive of the junior faculty and did not stand in the way of introducing new teaching methods. According to Lee Ho Wang (2005), who was one of first junior faculty members to participate in the degree program, the program was critical in facilitating the rapid adoption of new curriculum and teaching methods. Teaching materials were directly taken from University of Minnesota without translation. Almost all of the curriculum and examinations were based on those of University of Minnesota. Also, SNU faculty members studying overseas were assured of their position after returning to Korea, and were obligated to return to their position at least for one year. The program was not limited to University of Minnesota; in fact some Koreans were able to study in other institutions and countries, if appropriate for their studies.[24]

<Table 4-7> Composition of trainees in the Minnesota program: 1955-1960

	1955	1956	1957	1958	1959	1960	Total
Short-term consultation	11	8	5	3	17	7	51 (66%)
Long-term degree program	12	-	-	1	13	-	26 (34%)
Total	23	8	5	4	30	7	77 (100%)

Source: Lee, Wang-Joon (2006)

24 One faculty of SNU College of Medicine spent time researching at the Pastoral Research Institute in France, while another faculty spent time in State University of New York studying medical law.

<Table 4-8> Composition of trainees by their program duration in the Minnesota program: 1955-1960

	1955	1956	1957	1958	1959	1960	Total
3 months	-	-	-	-	2	-	2
6 months	6	3	2	-	6	-	17
1-2 years	4	3	2	3	10	7	29
Over 2 years	13	-	1	1	12	-	27
Total	23	8	5	4	30	7	77

Source: Lee, Wang-Joon (2006)

<Table 4-9> Composition of trainees in the Minnesota program by seniority: 1955-1960

	1955	1956	1957	1958	1959	1960	Total
Professor	7	3	1	2	4	-	19
Associate Professor	2	3	3	-	3	-	11
Assistant Professor	4	1	1	-	1	-	7
Lecturers/assistants	8	-	-	1	18	6	33
Others	-	1	-	1	4	1	7
Total	23	8	5	4	30	7	77

Source: Lee, Wang-Joon (2006)

The program also provided for a team of faculty advisors and consultants from University of Minnesota sent to Korea to assist the SNU College of Medicine in improving administration, teaching and curriculum. The US advisors also assisted the SNU faculty and staffs in instituting new organizational and administrative methods, and medical systems and practices. The experts also advised the SNU College in the selection and uses of books, equipments and supplies. To coordinate the technical program, a chief advisor which represented the University of Minnesota, resided in Korea and was responsible for supervision of the performance of all activities. One

of the duties of the chief adviser was to coordinate the procurement of equipment by working with each of the colleges in submitting formal requests that was prepared by the SNU faculty in consultation with overall advisors of each college. Then this proposal was sent to the review committee at the University of Minnesota before being submitted for final approval by the ICA.

Moreover, an overall advisor was provided by University of Minnesota for each dean of the various schools including agriculture, engineering, nursing, and medical, if requested by the SNU. The overall advisor's duty was to help in facilitating the goals of the technical assistance program. The role of the advisors was to assist the SNU faculty in implementing new American style medical system and practices, but also to monitor the performance and progress. The chief advisor was also in charge of preparing and submitting a progress report to FOA every six month. In addition, a final report was submitted upon completion of the program by each of the advisors.

According to Gault, who was the overall advisor to the SNU College of Medicine between August 1959 and August 1961, the role of the US advisors was more than providing advice on teaching and curriculum but also included as a show of support in providing motivation and encouragement to the SNU faculty and the students (Wang-Joon Lee, 2006, p101). The US advisors took a hands-off approach to the extent possible in assisting their SNU partners while they participated in weekly meetings, delivered the lectures and advised on clinical practices, offered surgical demonstrations and provided individual consultations to SNU staffs. As such the role of advisor was to "assist and not displace" the SNU staff. According to Gault (2005), US approach of assisting SNU was different from the Scandinavian approach which built a hospital, and provided all the staffs and medical doctors to operate the hospital without systematic efforts to impart knowledge and skills for the Korean partners. (See the Box below on the Scandinavian assistance for the National Medical Center.)

As mentioned earlier, the design of the Minnesota Program was left largely to University of Minnesota, but there were fundamental differences in positions in the implementation of the program between the US aid administrators, the ICA, and University of Minnesota. According to Dodge (1971), University of Minnesota wanted all major decisions concerning the program to be made in Minneapolis while the ICA and Korean government wanted decisions to be made by the chief advisor in Seoul. Moreover, the ICA and University of Minnesota differed on who should have control of the program's funding and how it should be used. The University of Minnesota

wanted direct control of the program's budgetary funds, so as to have flexibility to deploy the funds as needed, depending on when and where the need was without specific approval by the ICA. In contrast, the ICA was not willing to relinquish control, and instead wanted tighter controls over funds. The aid administrators feared bad publicity due to mismanagement of funds, since it was accountable to the US Congress.

At the program level, the University of Minnesota believed training should take place mostly in Minnesota while the ICA put equal importance on training SNU faculty in Seoul to maximize the benefits. University of Minnesota also wanted flexibility in determining the time and length of the assignments of the University of Minnesota staff sent to work in Korea. University of Minnesota believed that its staff should be assigned to Korea long enough to complete a given task, and not have stay any longer than necessary. However, the ICA argued that University of Minnesota staff should be stationed in Korea for longer periods of at least two years since the advisors would need time to familiarize themselves in Korea. Furthermore, the ICA was critical of University of Minnesota for sending "older" staff members near the age of retirement to Korea. ICA believed that older staff members would be less likely to be up-to-date on their discipline. ICA was also concerned that older aged advisors would likely experience health difficulties while in Korea, not a groundless worry as some sent to Korea had to grapple with their own medical conditions. Finally, the ICA and Korean government wanted the visiting US advisors in Korea to also teach in the College while members of the SNU faculty were studying in the US. University of Minnesota was against its advisors teaching, arguing that teaching by the advisors would be ineffective due to language and communication problems.

As can be seen in <Tables 4-10 and 4- 11>, a majority of US advisors that worked in Korea were assigned for periods of 1 to 2 years, at an average of 14.3 months. Many of them were young professors. In addition, the chief advisors in charge of the overall advisors of each of the colleges were also on long-term assignments. From the start of the program until 1961, Prof. Schneider acted as the chief advisor for 85 and half months.

<Table 4-10> Length of Assignment for US Advisors: 1956-1961

	Less than 6 months	7-12 months	12-24 months	Over 24 months
No of advisors	1	2	7	1

Source: Lee, Wang-Joon (2006)

<Table 4-11> Seniority of US Advisors: 1956-1961

	Assistant Professor	Associate Professor	Full Professor	Others
No of advisors	5	2	3	1

Source: Lee, Wang-Joon (2006)

The Minnesota Program, initially planned for three years, was extended for another four years after a positive assessment of the program. When the program was extended in 1958, priority was put on successfully completing on-going projects, and assessing the future needs of the program and SNU.

Box: National Medical Center under UNKRA

Assistance to improve medical services and medical standards of Korea's public health and medical care system carried out by UNKRA for the Korean National Medical Center (NMC) provides an illustrative comparison to the Minnesota Program. Under the UNKRA program, the NMC was built through collaboration between the Korean Government and three Scandinavian countries, Norway, Sweden, and Denmark. Besides the construction of a new medical facility, medical personnel necessary to staff and operate the medical center were dispatched by the donor countries. Initially, the Scandinavian countries had dispatched medical staff to Korea under the UN flag as part of war relief efforts during the Korean War to provide badly needed medical services and treatment to wounded soldiers and civilians. Soon after the War, the Korean government requested the UN to continue the program of providing medical treatment and training. Throughout the 1960s, the NMC grew to become one of Korea's top medical institutions. Unlike private hospitals, the NMC saw a large number of patients since it was a public health program and therefore allowed patients to seek medical care who otherwise could not have afforded to pay health costs.

However, the NMC continued to be largely staffed and operated by health professionals from the donor countries, totaling 367 foreigners (139 Norway, 134 Sweden, and 94 Denmark) for 10 years. Once their contract period ended and they returned home, the medical center experienced a gradual decline in the quality of care and facilities. Its gradual degradation led to the takeover of its management by the Korean government, which sought to reform it. However, the situation did not improve under the management of the government, as the NMC continued to experience deterioration in quality of care and facilities due to lack of investments and reduced pay scale for physicians. The uncompetitive pay scale has led to a decline in morale among the physicians, many of whom eventually sought work elsewhere, and difficulties in retaining and recruiting well-qualified physicians.

6. Korea's Engagement in Technical Assistance in Medicine in Lao PDR

In 2010, the SNU College of Medicine contracted a multi-year technical cooperation program with the University of Health Sciences (UHS) in Lao PDR. The technical assistance program with the UHS was modeled on, and indeed inspired by, the Minnesota Program. As in the Minnesota Program, SNU College of Medicine designed the program with three main objectives: the education and training of Lao medical practitioners in Korea; operation of a counterpart program whereby Korean advisors are sent to Lao to act as "on-site consultants" to assist in the institution of modern methods of teaching and medical practices, and systems; and the provision of material assistance in the form of medical equipment, books and supplies. The SNU College of Medicine as well as the Korea Foundation for International Healthcare (KOFIH), the funding agency, are enthusiastically motivated to pursue the technical assistance program, in the hope that a program similar to the Minnesota Program can have a transformative impact on education and practice of the medical sciences in Lao PDR as the Minnesota Program so famously did earlier in Korea. Many in the development cooperation policy circle in Korea are watching the progress of the program expectantly, and indeed already there is a plan to replicate the program in some other developing countries, anticipating the success of the program.

UHS is a government-run institution and the only medical college in Laos. That the SNU College of Medicine was one of several institutions of higher learning in medicine in Korea at the time of the Minnesota Program marks a difference, but arguably the potential impact might thus be greater in the practice of medical education and healthcare in the country. Apart from that, parallels are overwhelming between the UHS now and the SNU College of Medicine in the 1950s, mainly in terms of inadequacies, reflecting difficulties in socioeconomic conditions of the two countries at corresponding time points. According to interviews conducted by Kye Woo Lee, one of co-authors of this report, of students and instructors in the UHS, the Lao faculty members and students themselves are well aware of most of the problems. In general, the facilities, systems, administration and organization, and instructional materials of the medical school are out-dated and in poor condition relative to modern and international standards.

The number of classrooms is too few in view of the growing number of students and subjects offered at the school. The learning environment could use a major improvement in terms of well-trained and experienced instructors, curriculum and teaching methods emphasizing clinical practice, properly furbished clinical labs, and so forth, not to mention such basics as textbooks and class materials. The shortage of qualified instructors is filled by hiring instructors on a voluntary basis and asking instructors to teach subjects outside the area of their specialty. The quantity and quality of teaching materials in terms of medical labs and books are inadequate. The books the university library does carry for the students are often outdated and available only in languages such as French, in which most students are not fluent at all. A major problem faced by the medical students is their lack of fluency in English or other foreign languages, whereas most of the learning materials are not available in Lao.

A more subtle but no less serious issue may be the low morale among the medical students coming from their less than shining future prospects in the medical profession. After completing their studies, most graduates look to work for public hospitals as private practice is not likely to be successful by a recent graduate of the medical school with little experience when public confidence in the modern medicine is not high. As the government funding is limited in the operation of the pubic healthcare system, many of the graduates are not able to secure full-time jobs and end up working without pay while waiting as long as seven years in extreme cases for a position to open up. Even when they have garnered a job appointment in one of the public hospitals, remuneration is not high, as the medical profession is mainly seen in the country as a

form of public service, and the pay scale of the health professionals, including that of the doctors, is tied to that of the public servants at large. All these observations should have been familiar to the observers of the Korean medical education and practice scene in the 1950s and 60s.

The SNU-UHS technical cooperation program has just completed its first year of implementation. That is, the first group of seven UHS faculty members has already completed one year of education and training in Korea, which featured a balanced diet of teaching, research, and clinical practice. The program began with general training in the areas of administration, career development, site tours of medical facilities, communication skills and so on, after which the participants received more specialized training focused on their area of specialty. The UHS faculty members also received Korean language instruction for two hours twice a week to improve their communication capacity in Korea. The main language of instruction was English, naturally. To address the language barrier issue detected during the course of the first year, additional language enrichment courses are to be provided for future participants in Lao PDR before they come to Seoul. The courses will run for six months and will be administered before the candidates arrive in Korea.

While one can discern a broad alignment of program features between the erstwhile Minnesota Program and the current collaboration between the Lao UHS and the SNU College of Medicine, certain departures are also recognized. To begin with, the first year implementation of the program did not involve any training for the senior management of the UHS unlike in the Minnesota Program, which had the deans and senior faculty members of SNU College of Medicine trained first. This difference in program implementation may have taken into account the fact that the key policy and management decisions are under the joint purview of the UHS top management and the Lao Ministry of Health, while the SNU College of Medicine was an autonomous institution. There are plans, nonetheless, to have some of the senior managers of the UHS participating in training in Seoul in the future. Secondly, there is no firm plan as yet to dispatch Korean advisors to serve as on-site consultants in Vientiane. Instead, the SNU College of Medicine plans to organize workshops and video conferences to provide additional technical assistance. The workshops will cover current medical issues in Laos that will be presented by

UHS faculty, and Korea's experience and practices in medical care. SNU also plans to conduct on-site clinical and multi-media demonstrations.[25]

7. Conclusion and General Lessons

This chapter conducted a case study of a technical assistance program from Korea's past experiences as a recipient country, trying to identify the key success factors, and then assayed a comparison with a similar program Korea is funding at the moment. It goes without saying that slavish imitation wouldn't necessarily guarantee success. It is not even clear that such a close imitation is feasible. The amount of aid Korea received was massive, coming mainly from the US, presumably motivated to a large extent by strategic concerns in the context of the cold war. In contrast, Korea doesn't have a comparably urgent strategic concern in most of the partnership countries for development cooperation, including Lao PDR. As well, Korea's current ODA policy remains somewhat fragmented, and institutional barriers are considerable to bring a sufficiently well-integrated program beyond a certain minimum necessary scale to bear for a strategic initiative. The Korean government is working hard indeed to harmonize efforts carried out by aid agencies for greater aid effectiveness, but it would be foolhardy to think that the state of fragmentation would be soon overcome. That noted, we still believe that a comparison of Korea's experience as a donor and recipient at the project level may prove useful, especially in the design and implementation of future projects. In comparing the Minnesota Program and the SNU-UHS Program, this section focuses on the following areas to improve the delivery of assistance and the impact on development: strengthening mutual accountability between donor and recipient and instituting a results-oriented approach to maximize the impact of aid.

First, there needs to be greater bi-directional engagement between SNU and UHS to enhance mutual accountability between donors and recipients. This would require greater cooperation,

25 In terms of material assistance, the Lao faculty members that trained in Korea will each be allocated a budget of about 50 thousand dollars to be used on the procurement of medical equipment, books, and supplies that are needed in Laos. The Lao faculty are expected to draft a proposal, which will then be reviewed and approved by the Laos Project Steering Committee in Korea. The steering committee is comprised of seven members from SNU and one member from KOFIH and chaired by Associate Dean of SNU College of Medicine.

coordination and shared decision making on part of the donor and the recipient institutions. As the Korean counterpart advisors have not been sent to Laos, the SNU-UHS program should send Korean advisors to act as consultants in instituting modern medical methods and practices and in advising the procurement and introduction of new medical equipment and supplies as part of the material assistance. In particular, SNU advisors will need to assist the returning UHS faculty members from Seoul in instituting and applying what they have learned. In the case of the Minnesota Program, US advisors were sent to Korea to serve as in-house consultants for long-periods of about 14.3 months on average. These advisors provided valuable advice on a range of matters including selecting books, equipment and supplies in consultation with Korean counterparts.

Second, the SNU-UHS program needs to take a more results-oriented approach, especially considering the field conditions faced by medical practitioners in Lao PDR. Since medical doctors are neither highly paid nor highly regarded as might be expected in richer countries, many of the UHS graduates lack sufficient motivation to perform well. To adequately incentivize candidates, SNU should consider allowing the UHS candidates to study towards a degree or certification. To maximize the impact of the program, it should focus on nurturing the future leaders or agents of change of Lao. In the case of the Minnesota Program, SNU was selected with the hope it would develop into "a national center for high level leadership training for Korea" where the benefits accumulated by SNU would be passed on to other institutions. This would require having a competitive selection process to ensure the best and brightest are selected. Besides targeting the future leaders, the program should also focus on training the senior managers or top leaders of UHS, which would help support the adoption of new ways of doing things. The Minnesota Program first sent the senior management of SNU to the US for six months of training before sending faculty members to change the mindset of the top leadership at SNU.

Last but not least, the implementation of the program needs to be monitored and evaluated on a periodic basis to ensure progress and results. Under the OECD DAC principles for greater aid effectiveness, managing for results means having "transparent and monitorable performance assessment framework to assess progress against the national development strategies and sector programs." Under the Minnesota Program, the implementing institution, University of Minnesota, was required by the contract to prepare and submit semi-annual progress reports and a final report after the completion of the activities to the aid administrators.

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Annex 4-1: Contract for the Minnesota Project

CONTRACT

between

THE GOVERNEMNT OF THE UNITED STATES OF AMERICA

and

THE UNIVERSITY OF MINNESOTA

This Contract is entered into this 15day of July 1954, between the Government of the United States of America, represented by the Foreign Operations Administration, with principal offices in Washington, D. C. (hereafter called "FOA") and the University of Minnesota, a corporation organized and existing under the laws of the States of Minnesota, with principal offices at Minneapolis (hereafter called "Contractor")

WHEREAS, the Foreign Operations Administration is developing a proposed project to be executes in the Republic of Korea under which assistance would be furnished to the Government of Korea and the National University of Seoul in the fields of agriculture, engineering, medicine and nursing with a view toward aiding in the general rehabilitation and development of Korea; and

WHEREAS, it is contemplated that Contractor will be requested by FOA to undertake on behalf of FOA s substantial portion of the implementation of the aforementioned project;

NOW, THEREFORE, the parties mutually agree as follows:

ARTICLE I: SCOPE OF SERVICES TO BE PERFORMED

Using the data assembled by personnel of Contractor from information, observations and experiences in Korea, Contractor will provide services as follows.

1. Contractor will undertake to formulate the plans for consideration by FOA as to the most efficacious means to be pursued in achieving the aims referred to above.

2. Contractor will also arrange courses at the University of Minnesota for certain deans of colleges from Seoul National University, who will register at the University of Minnesota in the fall of 1954.

3. Contractor will also commence recruitment of staff members and consultants for work in Korea.

4. Contractor will also commence detailed study of equipment needs and will correspond with Seoul National University officials and America officials in Korea to the and that buildings and equipment may be readied for the future work to be done in Korea.

5. Finally, Contractor will prepare and submit to FOA a written report which shall contain detailed findings and recommendations covering the rehabilitation of National University of Seoul in the fields referred to above, and such other matters as are necessary and proper for the consideration of the parties hereto.

ARTICLE II: STAFF

In order to carry out the activities next above, Contractor shall procure the services of one full-time staff member who shall be known as the coordinator, and such secretarial assistance as it necessary; provided that the limitations of Article III shall be observed.

ARTICLE III: FINANCIAL PROVISIOMS

The total collar costs of this Contract shall not exceed $5,000, and reimbursement shall be made by FOA to Contractor as follow:

1. For salary paid the coordinator, not to exceed $2,000.

2. For secretarial assistance, not to exceed $750.

3. Actual out-of-pocket expenses including (but not limited to) telephone, telegraph, postage, cables, preparation and reproduction of reports and reference materials, and travel (including travel allowances of $10.00 per day), but not to exceed $2,250.

ARTICLE IV:

Appendix "A" attached hereto is hereby incorporated as a part of this contract.

ARTICLE V:

This contract shall become effective upon the execution by the parties hereto and shall remain in force for a period of three months unless previously terminated as herein provided for.

REGENTS OF THE UNIVERSITY OF MINNESOTA

FOREIGN OPERATIONS ADMINISTRATION

L, R Lunden, Comptroller

Chapter V

Toward a more Effective International Cooperation for Health-Sector Capacity Building in Lao PDR

KDI SCHOOL
KDI School of Public Policy and Management

Toward a more Effective International Cooperation for Health-Sector Capacity Building in Lao PDR

1. Introduction

In this chapter we take a step back and review the broader Lao and international context, and assess how the Dr LEE Jong-Wook—Seoul Project and some other Korea-funded development cooperation initiatives in the Lao health sector fit in this context. Based on the review, this chapter will come up with a list of suggestions for possible restructuring of the Korean programs and also for some further initiatives for more effective international coordination of development cooperation efforts in the country. We need to review for these purposes some of the salient field conditions in the health sector in Lao PDR, the Lao government's own plans and strategies to cope with the challenges in the sector, and the other development cooperation programs being implemented or in the pipeline in Laos. Indeed some of our recommendations in this chapter have been partially acted upon. (More on this later) To that extent, this chapter may also be read how a young donor country that is Korea is learning to adapt its international development cooperation efforts for greater effectiveness.

The world development cooperation scene is being transformed with the adoption of the key principles (ownership, alignment, harmonization, results, and joint accountability) in the Paris Declaration of 2005, and the 2008 follow-up measures in the Accra Agenda for Action.

The Declaration and the Agenda are founded on five core principles, born out of decades of experience of what works for development, and what doesn't. These principles have gained support across the development community, changing aid practice for the better. It is now the norm for aid recipients to forge their own national development strategies with their parliaments and electorates (ownership); for donors to support these strategies (alignment) and work to streamline their efforts in-country (harmonization); for development policies to be directed to achieving clear goals and for progress towards these goals to be monitored (results); and for donors and recipients alike to be jointly responsible for achieving these goals (mutual accountability). Still, the modalities in global development cooperation are far from satisfactory measured against the ideals embodied in the principles and the action agenda. The challenges could be steeper in the case of recipient countries with a crowded concentration of donor-funded activities, Lao PDR among them, and also in cases involving emerging donor countries, such as South Korea (Korea hereafter).

The endeavor we study in this chapter is first and foremost efforts to harmonize two Korea-funded projects in Lao PDR: the UHS- Seoul Jong Wook Lee Project, a collaboration for capacity building between the Lao University of Health Sciences (UHS hereafter) and Seoul National University's College of Medicine (SNUMC henceforth), and Lao-Korea Friendship Children's Hospital. The former is funded by the Korea Foundation for International Healthcare (KOFIH), and the latter by KOICA (Korea International Cooperation Agency). Harmonization is potentially a more serious issue for a young donor country such as Korea with multiple donor agencies, and the efforts to overcome domestic fragmentation present a significant test case in the country.

The case study is also to describe a pilot trial to explore international harmonization on a bigger canvas: coordinated Lao and Korean efforts to galvanize the international donor community to help launch Lao UHS's own Education Development Centre for Health Professions (EDC/HP), as a vehicle for international cooperation on a bigger, more meaningful scale. Our premise is that capacity building is requisite for recipient-owned, sustained development in the long-run, as we have come to recognize through Korea's own experiences as a former recipient country of international development aid, including those in the healthcare sector. The dilemma is that while scale large enough to ensure strategic commitment between partners is essential for successful capacity building, difficulties such as long gestation period and long results chain

make potential donors wary to commit to a large-scale capacity building program. We believe these are all the more reasons for vigorous international harmonization. The ongoing joint efforts by Korean and Lao agencies propose a functional division between potential donor partners, a potential innovation in the frontier of international aid harmonization.

The case study will also describe the efforts to explore possibilities for possible public-private partnership to facilitate aid harmonization, involving potential roles for the private sector and NGOs. Public-private partnership may help overcome problems arising from long gestation period and public sector donor rigidities.

In sum, the case study in this chapter will highlight the following points:

- How a young donor country is learning to put the aid effectiveness principles into action,
- How international development partners and the Lao Government are exploring an innovative way to harmonize projects for a better alignment,
- How the emerging alliance is also beginning to get the private sector involved, and
- How such a coordinated program for capacity building might lead to strengthened recipient ownership and sustained development of the health sector in Lao PDR.

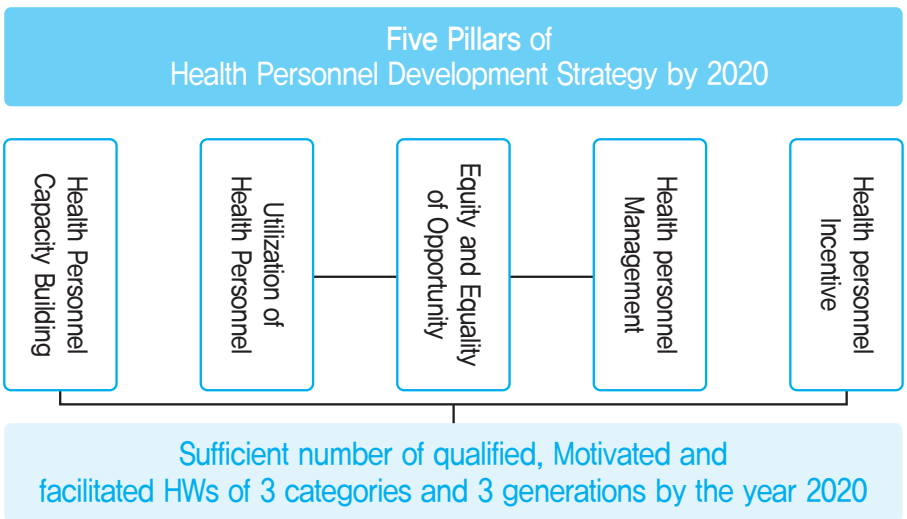
2. Backgrounds and challenges

Lao PDR is one of the LDCs in the Asia-Pacific region where the challenges for meeting the MDGs remain the steepest. Recently remarkable progress has indeed taken place in reducing infant mortality and other ailments afflicting the country through combined efforts of the international donor community and the Lao government. In spite of significant improvement, the maternal and infantile mortality rates remain high in Laos, and meeting the MDGs is clearly a priority goal in the Lao Government's National Health Strategy. At the same time, chronic dearth of qualified health workers is an acute problem. The WHO recommends minimum 2.5 health workers per 1,000 in population; the ratio stands at 1.53 in Lao PDR. At the heart of the health professionals deficit in Lao PDR lies the problem of deficient clinical skills training.

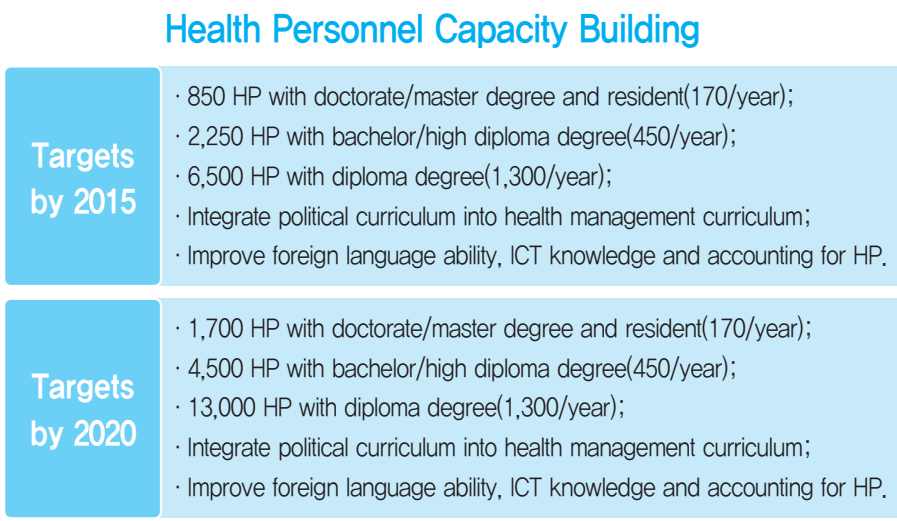
Limited government budget means that only about 50% of the UHS graduates get employed in the state health sector, and that attrition is a serious issue as doctors appointed in provincial and district facilities leave the medical profession. Those not retained mostly stop practicing, even though they could legally open their own private clinics, due to lack of sufficient clinical experiences. Deficiency in qualified doctors also adds to the difficulties in training of lower level health professionals.

To address the human resource challenge in the health sector, the Lao Government adopted in 2010 the Strategy for Health Personnel Development by 2020. The Strategy recognizes five pillars for the human resources development in the health sector, and envisions "sufficient number of qualified, motivated, and facilitated health workers……by 2020" [Figure 5-1]. It is significant, we note, that the Strategy lists capacity building in the first place among the five recognized pillars. More specifically, the Strategy sets out the time table for the increased supply in healthcare workers by 2015 and 2020 [Figure 5-2].

[Figure 5-1] Lao government's Health Personnel Development Strategy



[Figure 5-2] Lao Government's health personnel development targets



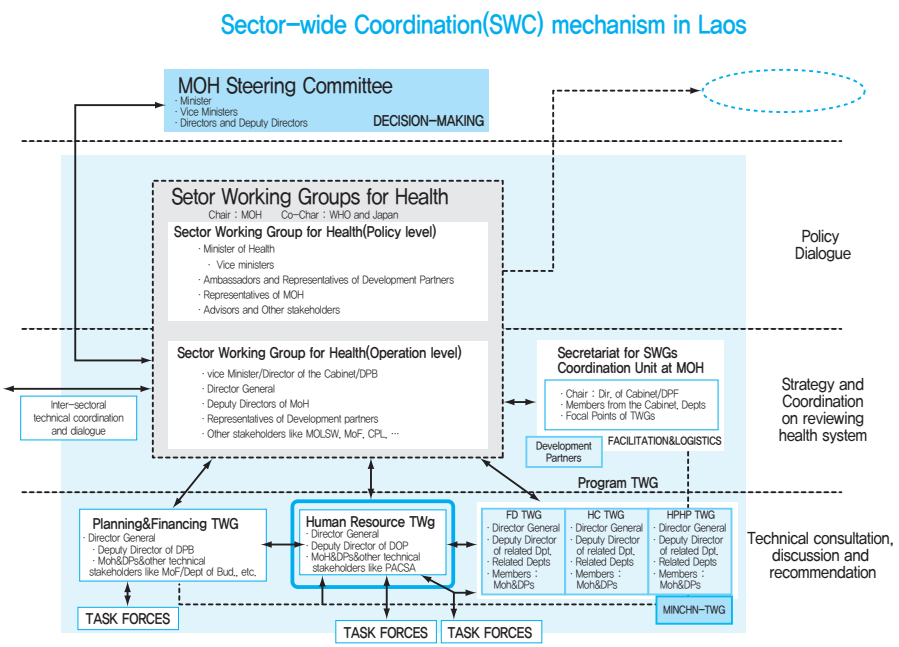
In the spring 2011, the Lao government's Ministry of Health officially decided to launch a new Education Development Centre for Health Professions (EDC/HP) at the UHS, the nation's sole institution of higher learning in medical sciences, as a vehicle to upgrade the training of health professionals in their clinical skills. The Ministry of Health recognized the urgent need to scale up, and improve quality of, health professionals' education, in view of the shortage and the imbalance in skill mix and distribution of qualified health workers. To overcome the limitations from inadequate, insufficient educational capacity, the Ministry envisioned the EDC/HP as the key resource mechanism for major investment and coordinated efforts in strengthening health professionals' education.

The adoption of the idea for the new center was itself a fruit of international, multi-agency cooperation: initially the idea was put forward by the country office of the WHO, and the feasibility study was taken up by the UHS with a fund provided by the Asia Development Bank. Improved clinical skills training is expected to help break the vicious circle consisting of lack of proper clinical training on the part of health professionals and underutilization of medical facilities especially at the provincial and district levels. The EDC/HP is to serve as the key vehicle to help attain the Lao Government's Health Personnel Development Strategy. The UHS

and its teaching hospitals appointed the management team for the EDC/HP in May 2011. The critical question, however, remains unaddressed where to find the required resources.

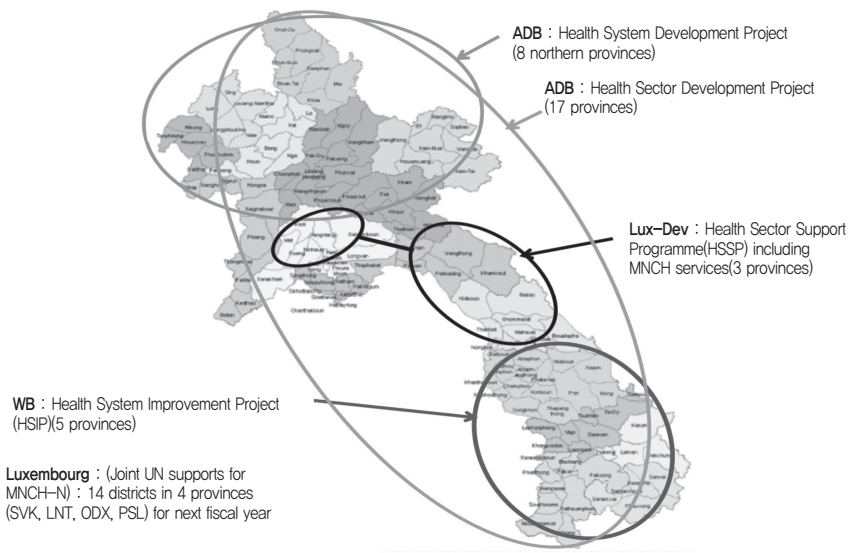
As a background in our view of the Korea-funded development cooperation initiatives in Lao PDR, it is also important to review some of the institutional arrangements in the country governing international cooperation. In the healthcare sector, to coordinate multilateral and bilateral programs, technical working groups (TWGs) have been set up to oversee actions in three areas. The three areas comprise planning and financing; human resource; and programs. and a steering committee has been put in charge of the overall activities, jointly chaired by the Minister of Health of the Lao government and the Japanese Ambassador. The whole architecture is known as the Sector-wide Coordination Mechanism (SWC) in the healthcare sector [Figure 5-3]. The function division among the three technical working groups recognizes the need for investment in the infrastructure, including investment in human resource/capacity building, as well we for vertical intervention programs for more immediate, urgent challenges.

[Figure 5-3] Sector-wide coordination mechanism (SWC) in Laos in the healthcare sector



A major accomplishment under the SWC mechanism has been the coordinated efforts to upgrade the maternal and children's care operations throughout the country, jointly supported by the WB, the ADB, and the government of Luxembourg. [Figure 5-4] International division of labor along the geographical dimension is a common practice for aid harmonization. In Lao PDR, we have a good example in the field of maternal and child healthcare. International development partners, including the Asia Development Bank, the World Bank, and the government of Luxembourg, are working with the Lao government in such a harmonized program. The template for geographical division of labor initially worked out between the Lao Government and the ADB was flexible enough to allow subsequent participation by other development partners such as JICA and KOFIH of Korea, including some overhead contribution. What we are proposing in the on-going joint Lao-Korean efforts is a functional division of labor among development partners for effective launching of the EDC vehicle.

[Figure 5-4] Geographic division of labor among international donor agencies for aid harmonization in the MCH field in Lao PDR



3. Korea-sponsored programs for healthcare in Lao PDR

Korea's overall ODA budget is still small, while the Korean government has pledged to triple the allocation within a few years. The relatively small budget is administered by a number of government ministries and agencies. The largest player is the Korea International Cooperation Agency (KOICA) with a budget of KRW 500 billion in 2011. In recognition of the potential importance of professional expertise in the healthcare sector, however, the Korean government also established the Korea Foundational for International Healthcare (KOFIH) under the auspices of the Ministry of Health and Welfare as an additional vehicle for implementation of development cooperation programs in the healthcare sector overseas.

In Lao PDR, KOICA built a new Children's Hospital with the capacity of 70 beds. The Lao Ministry of Health and the UHS plan to use the new hospital as one of the University's teaching hospitals together with four already in the set. As well, KOICA is funding several other programs in the country in the area of healthcare. Coming up in the pipeline is a substantial re-training program for healthcare professionals in primary care deployed in local clinics. The Children's Hospital is to serve as the training base.

KOFIH has been running several healthcare development programs of its own. The most recent new initiative is the Dr LEE Jong-Wook—Seoul Project, named after the late Dr. Lee Jong Wook, the former Secretary General of the WHO, designed to help upgrade the teaching capacity of the faculty members at the UHS in collaboration with the Seoul National University's School of Medicine. The project at the current stage is a three-year collaboration with an annual budget of USD 360,000 with a plan in place to extend the program period to total of 9 years. Fully implemented, the project envisions retraining of about 80 UHS professors at the SNUMC out of 300 professors at the UHS in total. The project also includes provisions to dispatch faculty advisors from SNUMC, and provide equipments and devices for education and research at the UHS. The Dr LEE Jong-Wook—Seoul Project is inspired by the erstwhile collaboration between the SNUMC and the University of Minnesota under the aegis of the US ICA, 7 years from 1954 to 1961. The project, known as the Minnesota Project in Korea, oversaw training of 77 SNUMC

faculty members in the US, and involved 11 University of Minnesota faculty advisors invited to serve in Seoul during the project period.[26]

Up until the first half of 2011, there had been no inter-agency efforts to coordinate the programs under the two agencies' respective purview. There were problems. The Dr LEE Jong-Wook—Seoul Project had high ambitions of creating a set of high-powered change agents in the faculty of the UHS, inspired by the SNU College of Medicine's erstwhile institutional transformation as a result of the intensive collaboration with the University of Minnesota funded by the US ICA back in the 1950s. The first batch of trainees, 7 faculty members selected from the UHS's Faculty of Basic Medicine, worked valiantly in collaboration with the SNUMC's faculty. Yet their absorptive capacity was not what it had been expected to be, exacerbated by the inadequate English language capacity of some of the trainees. That they came from diverse disciplinary backgrounds added to the logistical problems faced by those at the SNU College of Medicine in charge of their re-training. On the other hand, the provisions at the new Children's Hospital were not sufficient to enable the functioning of the facility as a bona fide teaching hospital.

4. Progress so far

In January 2011, the KDI School's Development Lab signed an agreement for research collaboration with the SNU College of Medicine and the KOFIH to study the impact of the capacity-building Dr LEE Jong-Wook—Seoul Project for the UHS faculty. The Development Lab had just been launched with a mandate from the Prime Minister's Office, itself put in charge of the government's overall efforts to improve the ODA implementation. The agreement envisioned a real time feedback based on formative evaluation to improve the design and implementation of the Dr LEE Jong-Wook—Seoul Project as well as a rigorous impact evaluation for the program's accountability.

26 The Minnesota Project is believed to have been instrumental in the whole-scale transformation of medical education in Korea, emphasizing clinical training and learning-by-doing with a lasting transformative impact on practice of medicine in the country. Chapter IV of this report provides an in-depth study of the project.

The two teams, from the SNUMC and the KDI School's Development Lab, almost immediately agreed that repositioning of the program might be required to facilitate the attainment of the program's longer-term strategic goals as well as the short-term training goals. The agreement in views was based on interviews with various stakeholders including the trainees, the management of the UHS, the trainers at the SNUMC, KOFIH the funding agency, the Lao Ministry of Health officials earlier in the spring.

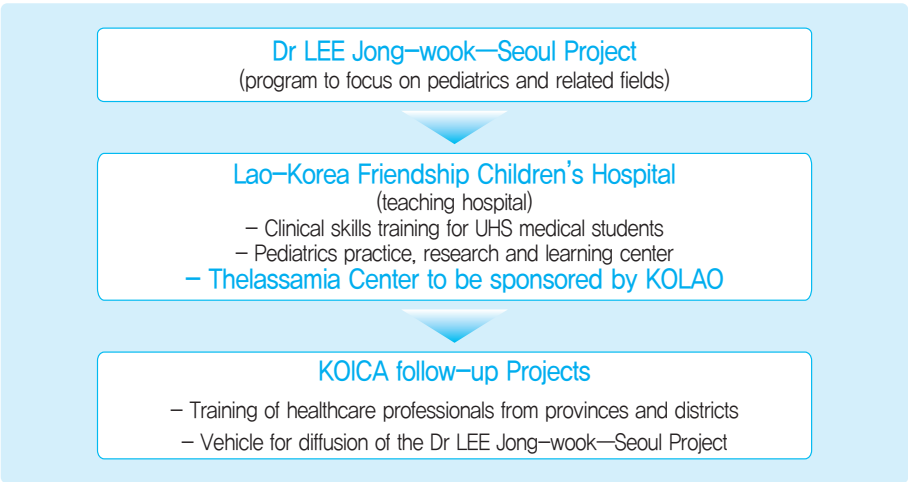
A major part of the problem was probably the limitation in scale and scope of the Dr LEE Jong-Wook—Seoul Project. Due in part to limitation in funding the KOFIH could secure for the program, the training was to be a one-year, non-degree affair. Provisions had been budgeted for to assist functioning of the trainees when they return to Vientiane, such as a planned outlay for teaching aids to be brought back to the UHS at the end of the training program. What the Dr LEE Jong-Wook—Seoul Project brought to the table probably fell short of what it might take to bring the UHS into a long-term strategic partnership, as originally envisioned on the Korean side. One should remember the depth of the institutional challenges faced by the UHS and the Lao Ministry of Health, including chronically inadequate and highly variable funding from the government and failure to stem very high attrition rates among the healthcare professionals.

Could the Lao Ministry of Health, the UHS, and the international donor community reenact the successful coordination of efforts in the primary care operations, and set the stage for a substantial improvement of clinical skills training, setting in motion sustained upgrading of combined medical-science practices at the UHS and the associated teaching hospitals, in areas comprising education, research, and practice? What could the Korean-funded programs do, if any, to help facilitate the undertaking? What about the agencies on the Lao side? These were the questions shared among the Korean agencies involved, KOICA, KOFIH, SNU's College of Medicine, Prime Minister's Office, and the KDI School's Development Lab. The team members of the Development Lab also sought counsel from the Lao government and international donor agencies to help answer the questions.

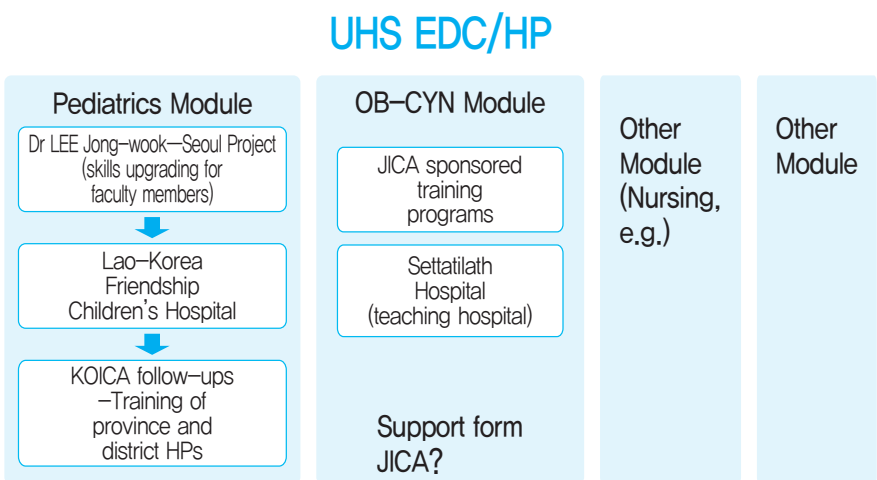
At the moment, it is not yet clear whether the strategic goals are attainable, and whether the required coordination is possible among so many national and international agencies involved. However, the Lao and Korean agencies have come to envision a practical, two-stage approach: harmonization among Korea-funded programs toward a strategically integrated pediatrics-

centered skills upgrading program in the first stage, and exploration for a broader international coordination to launch the EDC/HP on a full scale.

[Figure 5-5] Schematic for restructuring of Korea-funded projects



[Figure 5-6] Blueprint for international cooperation for the EDC/HP



The first stage considers harmonization, or vertical alignment, between Korean-funded programs. The vertically realigned Korean programs could serve as the pediatrics module for the EDC/HP as envisioned by the UHS/Ministry of Health. The UHS can play the critical role in the vertical integration by selecting for future Dr LEE Jong-Wook—Seoul Project batches key faculty personnel to be deployed at the new Children's Hospital upon their return from their retraining stint at the SNU College of Medicine, The SNUMC could augment its current engagement by sending faculty members to the UHS to assist the returning faculty members and coordinate the initial development efforts at the new Children's Hospital as a genuine teaching hospital. As well, the SNUMC might want to consider expansion of the Dr LEE Jong-Wook—Seoul Project into a two-year, degree program. The KOFIH and the KOICA could help with efforts to facilitate the coordinated development of the integrated program into a future pediatrics module of the EDC/HP, which might include some additional funding support to beef up the clinical training facilities and equipments at the new hospital. In addition, there should be ways for the new hospital to take advantage of the results from the Dr LEE Jong-Wook—Seoul Project as it implements the new re-training program with the Children's Hospital serving as the training base. Notably, KOLAO, the leading private-sector business group in Lao PDR, run by an expatriate Korean businessman, has shown interest in provision of resources to augment funding gaps that might emerge even after combined commitments from governmental and international donor agencies.

The second stage envisions channeling international donor community's engagements for the capacity building and the human resource development in the healthcare sector. The EDC/HP can serve as the resource vehicle to mobilize the integrated efforts. Both the Lao Ministry of Health and the UHS on the one hand, and the international donor community recognize the need for investments in these areas for sustained development of the health sector in line with the Lao Government's long-term strategic plan. And there have been international engagements indeed for the purpose. For instance, the Canadian government recently helped the UHS with a curriculum overhaul. Even though the UHS-Seoul Jong Wook Lee is the largest of its kind in the history of the UHS, there have been numerous faculty exchange programs intended to help with faculty capacity building. Our sense is that these efforts have been too little, and all too scattered, to enable the UHS to mobilize its internal resources for a sustained, long-term, strategic efforts for fundamental institutional transformation. The EDC/HP was launched precisely to

overcome this problem by serving as the vehicle for effective coordination of internal as well as international engagements for upgrading of clinical training and education at the UHS. What could be viewed as our proposal is a sort of functional division of labor among concerned Lao and international agencies. The Korean-funded programs, including the Dr LEE Jong-Wook—Seoul Project and the Lao-Korea Friendship Children's Hospital, could be realigned to serve as the pediatrics module at the EDC/HP. Japan might be able to contribute another module or modules in obstetrics/gynecology by its own adaptation of the JICA-provided Settatirath Hospital and its own assortment of training programs.

The KDI School's Development Lab collaborated with the Lao Ministry of Health, the UHS, and the WHO Vientiane office informally to seek counsel from the international agencies whose shared vision and institutional commitments would be essential to realize the ultimate strategic goals. The efforts took the form of an international workshop in Vientiane in September, 2011. To facilitate the preliminary, international consultation process, the Lao Ministry of Health and KDI School's Development Lab worked with the Lao government's NAPPA (National Academy for Politics and Public Administration) to jointly organize an international workshop in Vientiane on September 6. The workshop invited all the major participants in the SWC steering committee for international healthcare cooperation coordination in Lao PDR as well as Lao and Korean agencies involved in the programs. Among the participants, the local representatives of the international agencies such as the World Bank and the ADB were enthusiastic in their responses. JICA representatives endorsed the blueprint in principle, and requested Korean agencies' continued efforts to push the agenda through the mechanism of the SWC in the coming days.

The second-stage agenda, if pursued at all, should be owned by the Lao Ministry of Health and the UHS, and should be ideally taken up by the SWC steering committee in Vientiane for coordination of international development cooperation programs in the healthcare sector. KOFIH and KOICA, at the same time, might be able to assist the Lao ministry and agencies in the pursuit of the agenda.

5. Concluding remarks

Obviously, the efforts are still unfolding with much uncertainty about the eventual outcome. The authors of this case study, however, feel cautiously optimistic that the ongoing efforts will help the Korean funded programs better attain the principles for aid effectiveness, such as ownership, alignment, and harmonization. First, the harmonization efforts are being driven by the Lao government and UHS. Capacity building would add to the momentum for strengthening of Lao ownership in health sector development cooperation in the future. Second, individual donor agencies' capacity building programs would contribute to the EDC/HP, the key resource mechanism for health sector capacity building as conceived by the, and for the attainment of the health personnel development strategy of the Lao government. Third, the blueprint and the sector-wide coordination mechanism would facilitate engagement of potential partners in functional division of labor for efficient and effective cooperation. Focus on results and joint accountability are of course the other two pillars in the Paris Principles for aid effectiveness. We are aware that the long results chain presents a steep challenge for monitoring and evaluation of a training-of-the trainers program like Seoul-LJW-UHS/EDC program. KDI School's Development Lab is currently working with UHS and SNUMC to assess the impact of the UHS-Seoul LJW Project on learning outcomes of the UHS medical students, and is consulting the Lao Ministry of Health to explore possibilities for longer-term impact assessment further down the results chain.