Public Expenditure Management Network in Asia
Treasury Community of Practice

FMIS Study of selected PEMNA members:
Lessons for other countries

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Disclaimer

This is a study of the Treasury Community of Practice of the Public Expenditure Management Network in Asia (PEMNA), prepared by authors from different organisations such as the World Bank and the International Monetary Fund etc. The findings, interpretations, and conclusions expressed in this report do not necessarily represent the views of the organisation to which the authors belong. Further, the data contained in this report comes from the surveys conducted by the study team, interviews with different officials and the documents provided by various governments. PEMNA does not guarantee the accuracy of the data included in this work.
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# Abbreviations

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<th>Description</th>
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<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
<td>AP</td>
<td>Accounts Payable</td>
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<td>BA</td>
<td>Budget Allocation</td>
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<td>BC</td>
<td>Budget Classification</td>
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<td>BI</td>
<td>Business Intelligence</td>
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<td>BPI</td>
<td>Business Process Improvement</td>
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<td>BPIS</td>
<td>Budget Preparation Information System</td>
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<td>CIO</td>
<td>Chief Information Officer</td>
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<td>CMC</td>
<td>Change Management and Communication</td>
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<td>COA</td>
<td>Chart of Account</td>
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<td>COFOG</td>
<td>Classification of Functions of Government</td>
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<td>COTS</td>
<td>Commercial Of The Shelf</td>
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<td>CRP</td>
<td>Conference Room Pilot</td>
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<td>CTO</td>
<td>Chief Technical Officer</td>
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<tr>
<td>DG</td>
<td>Director General</td>
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<tr>
<td>DGST</td>
<td>Director General State Treasury</td>
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<td>DPD</td>
<td>Regional Representative Council in Indonesia</td>
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<td>DPR</td>
<td>People's Representative Council in Indonesia</td>
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<td>DRC</td>
<td>Disaster Recovery Centre</td>
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<td>EA</td>
<td>Enterprise Architecture</td>
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<td>EBF</td>
<td>Extra Budgetary Funds</td>
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<td>EBS</td>
<td>Oracle E-business Suite</td>
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<tr>
<td>ECTAC</td>
<td>Economic Capacity Building Technical Assistance</td>
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<tr>
<td>ERP</td>
<td>Enterprise Resource Planning</td>
</tr>
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<td>EU</td>
<td>European Union</td>
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<td>FA</td>
<td>Financial Accounting</td>
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<tr>
<td>FABS</td>
<td>Financial Accountability and Budget System in Pakistan</td>
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<td>FMIS</td>
<td>Financial Management Information System</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GFMIS</td>
<td>Government Financial Management Information System</td>
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<td>GFMRAP</td>
<td>Government Financial Management and Revenue Administration Program</td>
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<td>GFS</td>
<td>Government Finance Statistics</td>
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<td>GL</td>
<td>General Ledger</td>
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<td>GOI</td>
<td>Government of Indonesia</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>GOM</td>
<td>Government of Mongolia</td>
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<td>GOTL</td>
<td>Government of Timor-Leste</td>
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<tr>
<td>GRP</td>
<td>Government Resource Planning</td>
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<td>HR</td>
<td>Human Resource</td>
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<tr>
<td>ICT</td>
<td>Information and Communication Technologies</td>
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<tr>
<td>IDA</td>
<td>International Development Association</td>
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<tr>
<td>IDC</td>
<td>A global marketing intelligence firm</td>
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<tr>
<td>IFMIS</td>
<td>Integrated Financial Management Information System</td>
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<td>IMF</td>
<td>International Monetary Fund</td>
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<tr>
<td>IT</td>
<td>Information Technology</td>
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<tr>
<td>IV&amp;V</td>
<td>Independent Verification and Validation</td>
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<tr>
<td>KPPN</td>
<td>Kantor Pelayanan Perbendaharaan Negara- District level treasury office in Indonesia</td>
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<td>KTKB</td>
<td>Legacy treasury system in Vietnam</td>
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<td>LAN</td>
<td>Local Area Network</td>
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<td>MIS</td>
<td>Management Information Systems</td>
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<td>MOF</td>
<td>Ministry of Finance</td>
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<tr>
<td>MOU</td>
<td>Memorandum of Understanding</td>
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<td>MPI</td>
<td>Ministry of Planning and Investment, Vietnam</td>
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<td>MPR</td>
<td>People's Consultative Assembly in Indonesia</td>
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<tr>
<td>MTBF</td>
<td>Medium Term Budgetary Framework</td>
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<td>MTEF</td>
<td>Medium Term Expenditure Framework</td>
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<tr>
<td>ND</td>
<td>National Directorate</td>
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<td>NDP</td>
<td>National Development Plan</td>
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<td>NGO</td>
<td>Non-Government Organisation</td>
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<td>OLAP</td>
<td>Online Analytical Processing</td>
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<td>PAD</td>
<td>Project Appraisal Document</td>
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<td>PAR</td>
<td>Public Administration Reform</td>
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<tr>
<td>PEFA</td>
<td>Public Expenditure and Financial Accountability</td>
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<td>PEM</td>
<td>Public Expenditure Management</td>
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<td>PEMNA</td>
<td>Public Expenditure Management Network in Asia</td>
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<td>PFM</td>
<td>Public Financial Management</td>
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<td>PFMRP</td>
<td>Public Financial Management Reform Program in Vietnam</td>
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<td>PHRD</td>
<td>Policy and Human Resource Development</td>
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<td>PIFRA</td>
<td>Project to Improve Financial Reporting in Pakistan</td>
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<td>PIU</td>
<td>Project Implementation Unit</td>
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<td>PM</td>
<td>Project Management</td>
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<td>PMO</td>
<td>Project Management Office</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>PMQA</td>
<td>Project Management and Quality Assurance</td>
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<tr>
<td>PMP</td>
<td>Project Management Plan</td>
</tr>
<tr>
<td>PMU</td>
<td>Project Management Unit</td>
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<tr>
<td>PSSU</td>
<td>Project Support and Services Unit</td>
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<tr>
<td>PUSINTEK</td>
<td>Pusat Sistem Informasi dan Teknologi Keuangan or Center for Information Systems and Technology in Ministry of Finance</td>
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<tr>
<td>RDTL</td>
<td>República Democrática de Timor Leste</td>
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<td>RO</td>
<td>Roll Out</td>
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<tr>
<td>SAI</td>
<td>Supreme Audit Institution</td>
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<td>SAKTI</td>
<td>An application to support SPAN(IFMIS) in Indonesia</td>
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<td>SAL</td>
<td>Structural Adjustment Lending</td>
</tr>
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<td>SDLC</td>
<td>Software Development Life Cycle</td>
</tr>
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<td>SERN</td>
<td>Timor-Leste State Secretariat for Natural Resources</td>
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<td>SIP</td>
<td>Sector Investment Programs</td>
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<td>SIT</td>
<td>System Integration Testing</td>
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<td>SNA</td>
<td>United Nations System of National Accounts</td>
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<td>SOE</td>
<td>State Owned Enterprise</td>
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<td>SPAN</td>
<td>FMIS in Indonesia</td>
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<td>TA</td>
<td>Technical Assistance</td>
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<td>TABMIS</td>
<td>FMIS in Vietnam</td>
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<td>TCS</td>
<td>Tax Collection System</td>
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<td>TIU</td>
<td>TABMIS Implementation Unit</td>
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<tr>
<td>TORS</td>
<td>Terms of Reference</td>
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<tr>
<td>TSA</td>
<td>Treasury Single Account</td>
</tr>
<tr>
<td>UAT</td>
<td>User Acceptance Testing</td>
</tr>
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<td>UB</td>
<td>Ulaanbaatar</td>
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<tr>
<td>UNMISET</td>
<td>United Nations Mission of Support in East Timor</td>
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<tr>
<td>UNMIT</td>
<td>United Nations Integrated Mission in Timor-Leste</td>
</tr>
<tr>
<td>UNTAET</td>
<td>United Nations Transitional Administration in East Timor</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>VSAT</td>
<td>Very Small Aperture Terminal</td>
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<tr>
<td>WAN</td>
<td>Wide Area Network</td>
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<td>WB</td>
<td>World Bank</td>
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Acknowledgements

Four countries covered in this study are - Indonesia, Vietnam, Mongolia and Timor-Leste. The study was started with a preliminary survey followed by a semi-structured questionnaire. In case of the first three countries the second questionnaire was filled personally by the team or part of the team in direct consultation with country representatives. In case of Timor-Leste, the country was requested to fill up the second survey and send by email because there was no time available to visit that country.

We are thankful to all the countries who have cooperated and completed the first survey in time and provided a timely start despite some initial administrative delays. The team visited Indonesia and Vietnam and discussed in detail with various officials of Ministry of Finance, Project Management Units, Bank officials, consultants and contractors who took part in the implementation of IFMIS. The meetings were organised at very short notices and were required to fit in the limited time the team was in the countries (Indonesia and Vietnam). The team is especially thankful to the provincial and district authorities in Vietnam who were able to meet it and explain how FMIS operates in Vietnam. In Indonesia also, the team saw the level of preparation at the provincial level to implement SPAN. We would like to place on record our special thanks to the provincial officials in Denpasar.

During collection of data for the study, the team met a number of officials. We are thankful to all of them for sparing their time and talking to us frankly and sharing their experiences with us. We hope that in the report we were able to reflect their views and opinions as truthfully and sincerely as they had shared the views with us. In some cases, since events had taken place a few years ago, the team had to reflect in detail on past events for the participants to reconstruct the story for us. We would specially like to thank Mr. Hari Purnomo and Mr. Sudarto who helped the team tremendously during its visit to Indonesia and Mrs. Huyen Vu Thanh for her outstanding support in Vietnam. Thanks are also due to Mrs. Ariunaa of the Mongolian Treasury in providing details about the Mongolian GFMIS. We would also like to thank the officials and advisers in Timor-Leste Ministry of Finance who helped in timely completion of the questionnaires.

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Last, but not the least, the team will like to thank the PEMNA Secretariat and the Korea Institute of Public Finance, especially Mr. John Kim, for their support during the study.
Executive Summary

IFMIS is considered a fundamental building block of any effective Public Financial Management system. Since experience in implementing such projects is varied, the Treasury Community of Practice (T-COP) of PEMNA felt that it will be useful to learn how some of the peers in PEMNA region have implemented these projects and learn from their experience. Four countries were chosen for this study – Indonesia, Vietnam, Mongolia and Timor-Leste. Different motivating factors guided them towards implementing the IFMIS projects. Two countries emerged from former centralized economies, one suffered from the Asian crisis of late nineties and one emerged as a post-conflict country in the early part of the last decade. Three of them were World Bank funded and one of the projects was initially donor funded, but is now internally funded.

This study was started with a preliminary web administered survey which was followed by a semi-structured survey. Since the time for completion of this study was very limited, only three countries were visited for short durations to complete the second questionnaire and seek additional information. In the case of Timor-Leste, the second survey was completed by their MOF over email.

A typical IFMIS project takes considerable time to implement, this can be between 3 to 10 years. Such projects also see many changes with the procurement process taking a long time to complete, especially so in case of donor funded projects. How to package the contract is therefore an important consideration, which needs separate and prior thinking on the part of the country. Countries also need to assess readiness of their processes and see whether process alignment has been done to meet the basic PFM requirements as well as the suitability for IFMIS solution. This could sometimes require legislative as well as procedural changes and could add to completion time. In addition, long periods of project implementation will see changes in political leadership, as well as bureaucratic changes, and to sustain the same level of support of leadership is difficult, but important to ensure success.

The broad conclusions of this study are as follows:

**There is a hierarchy of requirements in order of importance which is necessary for successful implementation of IFMIS/treasury reforms.** In this hierarchy the technical aspects are low although often a lot of time is spent in discussing the technical solutions. The hierarchy is:
• Political will to implement sound PFM policies and procedures
• Realistic budget formulation for the project
• Need for Institutional arrangements to implement fiscal control
  o Control of treasury of all Government Financial Resources(e.g. TSA)
  o All transactions should be routed through Treasury
• HR capacities should exist to implement reforms
• Availability of appropriate technologies
  o Application software which covers functional aspects
  o Technology platform to implement IFMIS
• To ensure stronger government commitment, project could be framed as Public Expenditure Management (PEM) systems reform initiatives. This enables a better buy-in from the MOF and donors
• Project design should be driven by functional requirement rather than technical considerations.
• There are certain technological pre-requisites, such as existence of a good telecommunication network in the country, to connect locations
• Availability of technical expertise is necessary not only during the implementation phase but after completion of the project.
• Training a wide range of users and stakeholders is necessary
• Time frame should be realistic. It might work better if the projects are tied with donor programs or other Structural Adjustment Lending programs

Other areas which are important in IFMIS projects are as follows

**Business Process improvement becomes a challenge if it involves large scale changes in the operating procedures.** For example, if the spending units/budget entities were having their own bank accounts and as a changed procedure they are now required to be part of the Treasury Single Account, the change will be resisted. In some of the countries studied these accounts managed by spending units were running into thousands and involved a number of banks. This also applies to many old habits and the change that will be resisted as a consequence.

**The switch from old systems to IFMIS will involve many changes.** These changes would affect almost every part of treasury/budget operations. Therefore management of change would be required. Indonesia implemented concept of a Change Agent (Duta SPAN) to
communicate the changes with the stakeholders in the districts. Communicating change and convincing the larger user community on the necessity of change will require many modes of communication and different channels might be used for different target groups, to ensure success.

**Project Management plays a crucial part in such a large project.** It appears the project management support is required throughout the life cycle of the project. If the capacity exists in the country, it could be very useful. However, in case the capacity does not exist, it is useful to hire outside help. Hiring of Independent Verification and Validation consultant can be also considered as an important area of help. It is important for the project managers, whether internal or external, that they are able to assess the risks to the project and adopt strategies to mitigate the risk.

**Chart of Account is the lynchpin of PFM systems.** It is therefore virtually mandatory that the COA should be crafted in such a way that it is common to budget planning, preparation as well as budget execution. The consequences of not doing so are many - it will not be possible to get real time budget execution reports and these could only be prepared by using bridging tables to exchange data with other applications, thus sacrificing quality and accuracy.

**Inclusion of budget planning and preparation in IFMIS can pose challenges.** In the countries studied, Indonesia and Mongolia had decided to implement the budget preparation solutions. In Mongolia the solution has not worked so far after spending considerable time in implementation and in Indonesia the solution is yet to be implemented. Vietnam had decided that they will not include it in the original project and will consider it only when budget execution system settles down. Timor-Leste has implemented a simple solution which though not integrated is meeting the requirements of the country. It is therefore worth considering whether the IFMIS implementation could be considered as a layered implementation where one layer is created after another on top of each other. In such a layered structure, without doubt the budget execution layer could be considered the basic layer and other layers like budget preparation and planning can be built on top of it.

**There is no ideal level of customization in IFMIS.** However, it is the true-customization which is significant. Changing COTS configuration or creating customized reports is not customization. True customization is when core part of COTS is altered to suit particular requirement. For example, transaction locking protocol in COTS in Vietnam was altered to allow multiple books for provinces to remain open for transactions. By default when one set of books was opened, all other books used to get locked thus disallowing users from other provinces to post transactions. Excessive customization can bind IFMIS to older unsupported versions of COTS or lead to very high switching costs in the future. It is
therefore not a bad idea to identify important processes which will be customized in the COTS and adopt/adapt the other processes in COTS to save on cost and time.

**System architecture can affect IFMIS performance.** Though in the countries studied IFMIS had centralized architecture, it seems there are some performance issues which possibly would not have arisen if a decentralized database architecture was adopted, as was done in some other countries like Russia, Pakistan etc.

**Provision for Disaster Recovery Centre is necessary.** Once implemented, the IFMIS system becomes very critical for the operations of government payment systems. If an unfortunate incident takes place which puts the current server installations in danger, IFMIS will not be operational. None of the countries under study faced this situation. Indonesia and Vietnam have their DRCs though Mongolia and Timor-Leste have yet to establish their DRCs. This should also be considered as a mandatory requirement.

**There is no harm in erring on provision of higher capacity servers.** Experience in large projects shows that the original estimates of data and transaction volumes have proved inadequate. Mid-stream during the roll-out of IFMIS, the servers started to choke and new servers were required to be added. Since public procurement is a time consuming process, provision should be made in the contract that the higher capacity servers could be acquired during implementation, should such a situation arise.

**Pilots or roll-out should be timed when the capacities of treasuries are not stretched.** In almost all of the countries, the treasury offices are more occupied during end of the fiscal year. During that period, it is therefore not a good idea to engage with them either for pilot or for roll-out. The chances of success will be more if this is done at a more relaxed period of the year. Before any roll-out or pilot, requisite hard work (such as data conversion, training, hardware installation etc.) has to be done to make it a success.

**Continuous support is required for IFMIS during as well as after implementation.** Sustainability of IFMIS is predicated upon good support available during the implementation, because without it there will be a tendency to fall back on the legacy systems. Help desk, email support, hand-holding clinics etc. are some of the options used by the countries studied.

**Relationship with contractors has a bearing on project success.** The biggest risk in IFMIS implementation is that of the country. In order to ensure that the entire life cycle of the project is managed well, relationship with contractor(s) needs to be managed well. Though it might take a long time to establish a cordial relationship, as happened in Vietnam and Indonesia, an effort must be made to understand the contractor’s point of view also. This yields long term benefits.
Introduction and background

Introduction

Many countries in the PEMNA region have implemented, or are in the process of acquiring and implementing Integrated Financial Management Systems to modernize their PFM systems. IFMIS systems are complex and expensive therefore it is not possible for countries to switch from one system to another quickly and inexpensively. It is therefore essential that IFMIS implementation is undertaken after very carefully examining the needs and the sustainability of such a major project. Mostly these projects take 5-7 years or longer to implement the average time was 7.9 years in a database of 55 such projects funded by the World Bank and deliver results (Dener, Watkins, & Dorotinsky, 2011, p. 7), and involve significant levels of investment both in monetary and human resource terms. In some developing countries the IFMIS projects are financed either partly or fully through the loans/grants from the donor agencies such as World Bank, EU etc. while in other cases the projects are financed fully from the own budgetary resources of the countries. Different countries around the world and especially in the PEMNA region have varied experiences in implementation of IFMIS projects.

Since PEMNA lays emphasis on peer learning, its Treasury Community of Practice (T-COP) felt that a study could gainfully be conducted on implementation of IFMIS in this region to draw relevant lessons for peers in the community. The countries included in this study are Indonesia, Vietnam, Mongolia and Timor-Leste (the reasons why these countries were chosen are given in subsection later). This study would benefit the community tremendously and enable them to examine their own IFMIS strategies and projects if they are already underway and make timely amends for those who are in the process of finalizing such a strategy.

In some countries the IFMIS system serves the central, the provincial as well as the local governments whereas in others it is limited for use by the central level of government only. This study focuses on how such projects were conceptualized, implemented and monitored and draws relevant lessons for other countries.

Differences also exist in the infrastructure, capacity and computer literacy levels among this group of countries. It tries to identify how both the user community and the other stakeholders felt about the success or otherwise of the project to provide a good perspective to others on the modalities of “what” and “how” of the implementation of such projects and what hurdles lie ahead.

A number of countries – Malaysia, Indonesia, Vietnam, Timor-Leste, Mongolia, Thailand, Philippines, and Cambodia etc. have either established their IFMIS systems or are at different stages of implementing IFMIS projects. Due to limitations of time and resources, the present study focuses only on four countries. While Indonesia and Vietnam were studied by visiting these countries, Timor-Leste and Mongolia studies were planned as desk studies due to paucity of time.
Implementation of IFMIS in Governments does not seem to excite many researchers therefore in the literature it is difficult to find many papers on this topic, although there is availability of some marketing type literature which might not be relevant for this study. Recently a World Bank study was published (Dener et al., 2011) covering FMIS of a large number of countries for which World Bank funding was provided. The source of data for this study was the internal database of the World Bank. This study draws many significant conclusions on FMIS projects around the world. In 2008 USAID brought out a publication “Integrated Financial Management Information Systems - A Practical Guide” (USAID, 2008). This publication discussed the subject of “best practices” for designing and implementing Integrated Financial Management Information Systems (IFMIS) and how to put them into place in specific environments: namely, in developing and transitional countries as well as in conflict and post-conflict situations. This paper contained a few case studies and has made many relevant suggestions. In addition there are also publications on many topics of importance within the IFMISs such as (Diamond & Khemani, 2005; Hashim & Allan, 1999; Khan & Pessoa, 2010) brought out by the International Monetary Fund or World Bank etc.

The present study drawing from the previous studies, however, differs in scope and adopts an approach based on practical experiences of the countries studied and helps to develop a context detailing how the events unfolded and thus makes it less dense. The idea was to document knowledge about what happened and how it happened so that others, embarking upon FMIS projects learn from these experiences.

In the following sections, important issues which are discussed in the report have been explained. Most of these issues have been dealt with in the respective chapters for each country, some discussion below will help in better appreciation of the general context and clarity of concepts. This discussion is not a comprehensive treatment of the topics but limited to the issues discussed in the report.

**FMIS\(^1\) and its features**

A Financial Management Information System (FMIS) can be broadly defined as a set of automation solutions that enable governments to plan, execute and monitor the budget, by assisting in the prioritization, execution, and reporting of expenditures, as well as the custodianship and reporting of revenues. FMIS solutions can contribute to the efficiency and equity of government operations. Modern FMIS platforms help governments comply with domestic and international financial regulations and reporting standards, and support decentralized operations through centralized web-based solutions providing access to a large number of authorized budget users at all levels. In summary, FMIS solutions offer a great potential for increasing predictability, participation, transparency and government accountability (Dener et al., 2011).

In simple terms, an FMIS stores, organizes and makes access to financial information easy. Details on inflows and outflows of funds, as well as complete inventories of financial assets

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\(^1\) The acronyms FMIS, IFMIS and GFMIS may have slightly different connotations but in this report these acronyms have been used interchangeably.
(e.g., equipment, land and buildings) and liabilities (debt) for present as well as previous years can be seen in FMIS (USAID, 2008).

The scale and scope of an FMIS can vary, from simple General Ledger System to a comprehensive system addressing Budget, Revenue, Expenditure Control, Debt, Resource Management, Human Resources, Payroll, Accounting, Financial Reporting, and Auditing processes across central government or even including local government and other public sector and quasi-governmental agencies and operations. An FMIS should:

- Provide timely, accurate, and consistent data for management and budget decision-making;
- Support government-wide as well as agency-level policy decisions;
- Integrate budget and budget execution data, allowing greater financial control and reducing opportunities for discretion in the use of public funds;
- Provide information for budget planning, analysis and government-wide reporting;
- Facilitate financial statement preparation; and
- Provide a complete audit trail to facilitate audits.

As stated above the scope and scale of FMIS can differ, in the countries covered by this study, this was proved beyond doubt. Indonesia tried to implement budget as well as treasury functions, Vietnam has implemented its system at all the levels of government from central to district level, similarly Mongolia has also experimented with budget as well as treasury operations and Timor-Leste started with small installation for treasury, implemented a budget solution and has now implemented different portals to improve accountability and transparency.

An FMIS may not necessarily be a single system. It could be a group of software solutions which support different PFM functions and at the same time work together through various means such as interfacing, via portals, distributed databases or shared databases. For example, in Vietnam the system for domestic debt management was implemented with TABMIS while the external debt management software application was implemented well before TABMIS was introduced, yet both were interfaced to form a viable FMIS system. In Timor-Leste, there are two separate applications for Budget and Treasury, yet they also form part of the FMIS system.

PFM Reforms and FMIS

In general, PFM reforms have been on the agenda of most of the countries. FMISs have been recognized as a critical PFM reform in a wide range of countries in order to meet the requirements for a fully compliant budget system. Certainly it is difficult not to agree with the argument that this more integrated IT approach is essential to accommodate necessary PFM requirements when moving beyond financial compliance objectives (Diamond, 2013, pp. 45-46). In the words of Allen Schick, almost all PFM reforms can be distilled into the following contention, “to change behaviour and results, governments must change the information available to participants, the manner in which the information is processed, and the constraints under which the participants act” (Curristine & Lazare, 2013, p. 26). An effective FMIS can be an important vehicle for improved quality of information flow on the budget and its utilisation. Thus FMISs are rightly recognised as an important pillar of PFM reforms.
For the purpose of this study, the FMIS projects can be divided into three groups. First, transition economies, such as the countries of the former Soviet Union and the countries which transitioned from centrally planned to a market economy post 1990s. Vietnam and Mongolian FMIS projects fall in this category. The second category is the countries where basic principles and institutional structures required for expenditure management in a market economy were already present but required repair and modernisation as in the case of Indonesia. In later nineties and early part of the first decade of this century many countries saw conflicts which destroyed their government structures. In the post-conflict stage these countries required to start afresh and FMIS systems were established in such countries like Timor-Leste.

**Procurement and Contracting**

Procurement and contracting for a large project such as FMIS can be a complex undertaking. There can be differences in which the procurement can be divided. For an FMIS end-to-end commissioning, there are two possible ways in which the procurement can be done:

- **Turnkey Procurement**: in this case all elements of the technology platform including the application software, the hardware and the networking are bundled into one contract. Under this option, it is normal to define requirements in functional terms and volumetric of transactions and the supplier is left to propose the appropriate S/W and technology platform. In a single responsibility contract systems integration is the responsibility of the supplier. Since it is easier to manage one contract this option is recommended in cases where the Government has limited contract management capacity. However, it is necessary that during contract definition the Government’s and the contractor’s responsibilities are defined clearly. In these cases Government may need expert assistance for contract management.

- **Multi Tranche**: Under this option the different elements of the technology platform are procured separately. In general the application software and implementation services are procured first and the S/W supplier is required to define the hardware requirements. The H/W and technology platform are then procured separately. The advantage here is that procurement packages are more specialized and can attract better responses for each area. However, in this case the systems integration is the responsibility of the Government and Government will require good technical consulting and contract management.

In case the donor funds are used for implementing the FMIS, there would be a requirement that their (donors’) guidelines for procurement are followed, as was the case in Vietnam, Indonesia and Mongolia. In case of Timor-Leste initial installation of system was on a nomination basis and further improvements have also been on a single tender basis though funded internally.

**Customisation, Parameterization and Report development**

In COTS implementation many times customisation, parameterisation or report development is discussed with the vendors or internally. These three areas are frequently confused in this
discussion. For better appreciation of these topics, clarification of each of these concept is
given below.

- **Parameterization:** COTS packages offer facilities to parameterize the software to
country specific requirements. This includes facilities to configure Charts of Accounts,
business process work flows, configure controls select from Cash or Accrual basis of
accounting etc.

- **Customization:** This involves changing the source code of the package and this
changed source code will not normally be supported by the vendor and may even
invalidate the software warranties and maintenance agreement therefore should be
avoided.

- **Reporting:** Sometimes the development of reporting capabilities using the tools
provided by the vendor is also confused with customization which it is not. Custom
report development is a normal activity with any software and the tools available with
most packages including data warehousing tools enable the users to develop reports in
accordance with their requirements. THIS IS NOT CUSTOMIZATION. This
however, does require good training for the users in the use of these tools provided by
the vendor and in facilities to down load the data to EXCEL or any other simple type
of files so that other tools such as Crystal Reports can be used to produce the desired
reports. Some of the report writing tools like Crystal Reports, Jasper Reports etc. can
be used directly with the database of the FMIS also and this will require even better
knowledge of the underlying database of the FMIS.

Consultancy support for FMIS projects

The consultancy support can be important throughout the life cycle of the FMIS projects. In
case of the funding from the bank, these projects normally include financing for the various
stages of an IFMIS project. Major Consultancies that are prescribed are for the design,
procurement and implementation phases. Several models are used to design the consultancy
package.

There are advantages in the model in which the same consultant was employed for the design,
the procurement and the implementation phases. The work of this consultant in the design
phase is to review the existing business processes, recommend changes and develop
functional requirements and systems specifications for the system to be procured. In this
consultancy phase, the consultant is charged to assist the government in the execution of the
complex WB procurement processes.

Finally in the implementation phase the task of the consultant is to help the Government
manage and supervise the work of the contractor who has been contracted through the
procurement process and ensure that the system that is implemented follows the design
specified and approved earlier.

In order to do this in accordance with WB guidelines for procurement of consultants, the
initial TORS for these consultants need to detail all three phases. It needs to be stated clearly
that each phase is separate and the consultant contract will be extended to this phase only if
the work of the consultant is found to be satisfactory in the preceding phase. (Other subsidiary consultancies e.g. for change management and training could be contracted separately).

However, in many projects in East Asia including the project in Indonesia the main consultancies were contracted separately.

In the case of Russia and some other projects separate IV&V (Independent Verification and Validation) consultant were hired but the work of this consultant was in addition to the main consultant who continued throughout the various stages of the project. The latter consultant (IV&V) did not have any responsibilities in interfacing between the contractor and the government or to help the government in contract management supervision of implementation. Configuring the consultancy assignments has proved to be a significant bottleneck for systems implementation in some projects.

The project which are not funded either through WB or other donors, the significance of consultancy support remains important and cannot be ignored.

**Connecting the Spending Units/Budget Entities**

In FMIS it is best to pick up the transactions as close to their point of origin as possible. Therefore a spending unit based deployment option would in principle be preferred. However there may be significant cost implications involved in such a deployment. The number of spending units in a country can be quite large (often in the order of several thousands, as in case of Vietnam or Indonesia) compared to typical sub Treasury office numbers which would normally be of the order of 100-200. This would mean that the number of end users connected to the central server and using the application software directly would be correspondingly higher as would be the hardware requirements for providing systems access to all these users across the network. Thus for example the hardware and software (license costs) for a typical remote user could be of the order of $2000 or more. If there are 10,000 such users across the network the additional cost involved would be $20 million.

Connecting sub-treasury or district level treasury appears more practical approach, therefore spending units are normally required to send their transactions to a designated treasury office either in hard copy or electronically and the designated treasury office would then enter the transaction in the system. The main line ministry head offices could still be connected to the system directly to enable them to monitor the status of their budgets etc.

This was the model that was implemented in many countries (Russia, Kazakhstan and Pakistan) in the initial stages of systems implementation. It is noted that this model is normally what is used anyway when the systems have not been automated. However once the system is operational, then SUs could be provided access to the system via a web portal. This would enable the SU to send a transaction to the system. However, this transaction would not update the data bases and would only create a file that would subsequently be used by the Treasury office to update and process the transaction.

An important point to be understood is that if there is a seamless interface between the budget preparation module and the budget execution modules which means that they share the system data bases then it is fine. However, if these two modules need to have data transfer between them then there are a few prerequisites for these two modules.
First after the budget has been finalized in the budget preparation module, then it should be loaded into the budget execution module and all in year changes to the budget, including budget releases, virements, and changes need to be made in the budget execution module. The databases of the budget execution module are the primary data bases of the IFMIS and all reporting needs to be done from these data bases.

**Budget preparation module**

It is natural to think that FMIS would cover all stages from budget planning and preparation to budget execution. However, in many countries it has been seen that the budget department is insistent to use their own system for budget preparation and budget control rather than the Treasury system. If this is the situation obtaining in a country, it could be a challenge to include budget preparation module in the initial stages of FMIS implementation.

**Multi-layer FMIS**

Instead of conceiving the FMIS project as a monolith containing budget preparation, budget execution etc. it can also be viewed as a set of layers with the basic transaction data and the systems modules that are used to process this data, as components of the first layer. On top of this layer there is a financial operations layer that enables production of budget execution reports, determination of the cash position in Government bank accounts, the ways and means position and production of monthly financial statements. Finally, on top of the financial operations layer is the management and statutory reporting layer which enables production of overall fiscal reports, audited financial statements and statutory financial reports.

In practice it is necessary to first have the transaction processing layer in place to be able to get good and credible information to be used for financial operations and for management reporting. Other layers would be built on top of this layer.

Experience shows that implementation of the transaction processing layer is the most difficult and time consuming and the quality of information available from the financial operations and the management reporting layer will depend on the quality, timeliness and comprehensiveness of the transaction data that is captured by the transaction processing layer. Once a comprehensive transaction processing layer has been set up the implementation of the other layers is relatively quicker and easier.

In order to achieve significant outcomes such as good budgetary control and cash management it is necessary to first implement modules to cater to Core Budget Execution Processes, i.e. to capture payments and receipts transactions, across government, before going on to other non-core elements, like fixed assets management, HR management.

It is most effective to first implement a Treasury Centric System in which spending units are required to bring / transmit (via a web portal) expenditure and receipts transactions to designated treasury offices and subsequently de-centralize transaction entry to spending units – if necessary/possible. However, it must be done in the overall context of broad PFM reforms and initiatives to be successful and optimise results.

To start with, budget preparation can be done outside the system or by another system, and the final approved budget can then be loaded in the system and used to control expenditure.
However, all subsequent in year budget transactions, like budget releases, transfers etc. should then be done in the Treasury system. This is the model which was implemented in Russia, Kazakhstan, Pakistan and some other countries.

In case FMIS project is conceived as a one large project encompassing stage of budget preparation to budget execution, it will be complex and will have consequences which must be analysed before embarking on implementation of such a project. Large FMIS projects also can be viewed as a number of systems (budget, debt-management, asset-management etc.) which work in tandem, maintaining and sharing data consistently among them.

Previous studies and experiences

Studies which have been done earlier as cited in the above section have drawn some conclusions. Some of the important conclusions are

- The political commitment and ownership is important.
- Success depends on adequate preparation.
- FMIS priorities and sequencing should be addressed carefully.
- A focus on developing internal client capacity early in the process is crucial.
- The type of FMIS solution influences implementation.

In addition to these dimensions, in the present study a number of other areas have also been examined as the FMIS implementation unfolded in the studied countries. The objectives are mentioned in the next section.

Selection of countries

Since FMIS projects are complex and generally take a long time to complete, and the intent of this study was to focus on PEMNA member countries, the countries which were within the PEMNA region only were covered. It was difficult to find country cases in this region which have similar attributes in terms of size, complexity and are in a similar stage of FMIS implementation, and who would agree to be covered in such a study. Moreover, the objectives of the study were broad and focussed on many dimensions of the FMIS projects, primarily on lessons learnt from implementation experiences and therefore it was not necessary to study exactly similar countries.

Two countries chosen (Mongolia and Timor-Leste) were small in size but had successfully implemented FMIS sometime back and could provide good lessons on successful implementation. Mongolia had also experimented with the budget preparation solution. Timor-Leste, after implementation of FMIS some years back, had leveraged that to implement portals which could be used for transparency, accountability etc. This provided a good opportunity to learn how FMIS could benefit in improving the PEM framework. In terms of larger countries, Vietnam had also recently completed the implementation of their FMIS. Due to unique nature of Vietnam, this system covers all the levels of government and has taken a number of years to complete. Indonesia too is a large country and started implementing their FMIS just one year after Vietnam and is in the process of roll-out As a result these countries, were able to provide very rich data for drawing lessons by other PEMNA member countries.
Further, since three of these countries are World Bank funded, significant amounts of information about the projects was available in the public domain and more data could be obtained with the cooperation of World Bank.

Lastly, the time available for the study was very limited, therefore, it was necessary to study the countries which were willing to participate and cooperate in the study.

Objectives

This study attempts to focus on the following objectives:

- What was the stimulus for undertaking IFMIS
- What were the key drivers for implementation of IFMIS
- Present status of PFM reforms and the status of IFMIS
- What were the problems faced during implementation and how these were resolved
- How the business processes have been improved to meet the requirements of IFMIS
- How IFMIS was institutionalized into the normal functioning of the Government so that after project completion minimal external support is needed
- Capacity / oversight of MoF to implement IFMIS, and how has MoF developed its capacity to implement and sustain IFMIS
- Extent of involvement of senior management in implementation / political commitment and its impact
- How the change was managed by countries
- What specific lessons were learnt during implementation
- How the next steps are being planned to further the use of IFMIS.

Limitations

As mentioned before, this study was conducted in a very short period of time between mid-September and end November 2013. Due to paucity of time the visits to the countries to explore various dimensions were limited to a few days in Indonesia, Vietnam and Mongolia. The information for Timor-Leste was collected only through email. Again due to pressure of time, the draft report for each country was sent to them for review giving a very short time to complete the review. Though an effort was made to engage with as many stakeholders as possible, however, it was not possible to meet a larger number of IFMIS users/stakeholders.

The budget cycle in most of the countries was at the final stages, it was difficult to meet many officials involved in budget preparation during the period when visits were made. In case of Mongolia, since the project was implemented several years back, only a few officials who were involved in the project implementation were available, so only the views of a smaller number of officials could be collected.

The studied countries are at different stages of the project life cycle. In Indonesia at the time of report preparation IFMIS is yet to be fully implemented, in Vietnam installation in a large number of locations has been completed, in Mongolia the project had been completed in 2005 and in Timor-Leste the Government had installed the application in 2001. In last few years
GOTL have attempted to revamp the IFMIS application and expand its scope by creating transparency and results portals by linking IFMIS to these online portals. The number of users, size of the country, number of transactions etc. are also greatly different. Therefore the case studies are not identical in many respects and this would limit strict comparison. The purpose of this study was not to produce a report as an academic tome but to build a narrative and draw lessons for use by the community. Since no two countries are same, this study attempts to draw only the pattern of problems faced and their solution so that it can give an idea how a similar situation can be handled in different countries and an idea of what worked under those circumstances.

Methodology

Initially information was gathered by means of a simple survey conducted through the Internet (Annexure – I). The first survey included basic questions about the Treasury, Budgeting System, Volume of transactions, Structure of Treasury, Funding of IFMIS system etc.

This was followed by a second survey (Annexure- II) which contained semi-structured questions. Answers to these questions were obtained while the team met with the concerned officials in Indonesia and Vietnam during their study visit. In case of Mongolia, the second survey was completed by one of the team members. For Timor-Leste, the second survey was completed by the Ministry of Finance and responses sent by email.

The combined results of the two surveys have been used in the report to build a narrative of how the project were implemented and how different situations were handled. The lessons from each of the areas have been drawn at the end of the section where situation has been narrated and comments of the countries incorporated.

After the reports were completed, the draft reports were also circulated to the respective countries so that they can vet the reports for any factual inaccuracies.

Structure of Report

Following this chapter, a separate chapter has been devoted to the experiences of each country. The lessons learnt from each country have been elucidated just below each sub section. The next chapter is devoted to Indonesia, and later chapters to Vietnam, Mongolia and Timor-Leste respectively. Finally all the lessons from these countries have been consolidated in the chapter titled Conclusions.
Indonesia

Background

Indonesia is an archipelago comprising approximately 17,508 islands. It encompasses 34 provinces, 413 regencies, and 98 municipalities with over 250 million people, making it the world's fourth most populous country. Indonesia's republican form of government comprises an elected legislature and president.

Following the resignation of President Suharto in 1998, Indonesian political and governmental structures have undergone major reforms. Four amendments to the 1945 Constitution of Indonesia have revamped the executive, judicial, and legislative branches. The president of Indonesia is the head of state and head of government, commander-in-chief of the Indonesian National Armed Forces, and the director of domestic governance, policy-making, and foreign affairs. The president appoints a council of ministers, who are not required to be elected members of the legislature. The 2004 presidential election was the first in which the people directly elected the president and vice president. Elections are held every five years.

The highest representative body at national level is the People's Consultative Assembly (MPR). Its main functions are supporting and amending the constitution, inaugurating the president, and formalizing broad outlines of state policy. The MPR comprises two houses; the People's Representative Council (DPR), with 560 members, and the Regional Representative Council (DPD), with 132 members. The DPR passes legislation and monitors the executive branch; party-aligned members are elected for five-year terms by proportional representation. Reforms since 1998 have markedly increased the DPR's role in national governance. The DPD is a new chamber for matters of regional management.

Indonesia is a member of the G20 with the GDP currently ranked at 16th among the 20 largest economies in the world. During the global financial crisis in 2008/9, Indonesia outperformed its regional neighbours and joined China and India as the only G20 member posting growth. OECD projected Indonesia to be the fastest-growing economy amongst the ASEAN-6, with an average annual growth rate of 6.0% in the period 2014 to 2018. This strong medium-term economic outlook for Indonesia is underpinned by robust growth in domestic demand, strong infrastructure spending, and implementation of structural economic reforms.

However, Indonesia still struggles with poverty and unemployment, inadequate infrastructure, corruption, a complex regulatory environment, and uneven resource distribution among regions. The government also faces the challenges emanating from the current downturn in global commodity prices that would potentially reduce the tax and non-tax revenue far below target.
Crisis of late nineties

Asian financial crisis of 1997–98 affected Indonesia badly. There were sudden and large capital outflows leading the Rupiah to go into free fall. Against the US dollar the Rupiah dropped from about Rp 2,600 in late 1997 to a low point of around Rp 17,000 some months later and the economy shrank by a remarkable 13.7%. These developments led to widespread economic distress across the economy and contributed to the political crisis of 1998 which saw Suharto resign as President (WorldBank, 2006b).

The Rupiah later stabilised in the Rp.8,000–10,000 range and a slow but steady economic recovery ensued. However political instability, slow economic reform, and problems with governance slowed the recovery (Guerin, 2006). Since 2007, however, with the improvement in banking sector and domestic consumption, national economic growth accelerated to over 6% annually and this helped the country weather the 2008–2009 global recession. The Indonesian economy performed strongly during the Global Financial Crisis and in 2012 its GDP grew by over 6%. The country regained its investment grade rating in late 2011 after losing it in the 1997. However, as of 2012, an estimated 11.7% of the population lived below the poverty line and the official open unemployment rate was 6.1%.

Reforms

Immediately following the years of crisis, progress in economic policy-making, yet limited strengthening of governance and public institutions, had characterized Indonesia’s continuing transition from an autocratic, centralized state to a democratic, decentralized one. The country had regained macroeconomic stability and cut poverty back to near pre-crisis levels. However, Indonesia’s achievements continued to be clouded by widespread concerns about governance and those indicators generally remained low. In spite of impressive improvements in the macroeconomic context, neither investment levels nor, broadly, the quality of public services, had returned to pre-crisis levels. This was a reflection of the weaknesses of public institutions, lack of transparency and accountability, and concomitant corruption. These weaknesses were affecting both sides of the fiscal equation: public resource use and revenue generation (Worldbank, 2004c).

The key challenges constraining Indonesia’s public financial management (PFM) system such as greater efficiency, transparency and accountability in the management and use of public resources - were well known to Indonesia’s policy makers. In addition, fragmented and overlapping MOF structures were also a major constraint.

Government of Indonesia brought out a white paper in 2001 which stated that transparency in government budget preparation and accountability in treasury management would strengthen the responsive, efficient and effective allocation and use of resources, and constitute an essential element of Indonesia’s antipoverty program (Worldbank, 2004c). Following the crisis, the pressure for change became stronger both from within the country and from outside. High inflation, rapidly rising prices, increasing budget deficits, and the huge burden of public debt were among the powerful forces creating impetus for reform from within the country, while pressures from international financial institutions and the quick recovery of other countries from the crisis added strength to the demand for a change program.
The government promptly used this timely momentum to push reforms focusing on the areas of economics, politics, social policies, and law (Achmad, 2012).

The first phase of reform addressed the legal and regulatory framework for financial management. It was implemented starting in 2003 with the adoption of

- Law 17/2003 on State Finances,
- Law 1/2004 on the Treasury,
- Law 15/2004 on State Audit and

With the legal framework in place, the second phase of reforms is focused on other areas, including re-engineering of business processes, modernization of information, communication and technology (ICT) systems and the development of human and organizational capacity to operate a modern, state of the art, public financial management (PFM) system. In sum, they seek to address weaknesses in Indonesia’s public financial management systems, which had continued to impair the efficiency and effectiveness of public spending.

With regard to public financial management, the focus was on the ways in which government institutions could better manage the approved budget allocations, deliver programs and activities, and account for the execution of the work plan and budget.

The Indonesia Ministry of Finance initiated a suite of PFM reforms to improve efficiency and effectiveness in the management of the state finances. These are not easy tasks, given the Ministry of Finance is responsible for trillions of rupiah of revenues and expenditures, which must be processed in an accurate and timely manner through hundreds of state treasury services offices (KPPNs) serving thousands of spending units that conduct millions of cash transactions. As required by the laws and later by other reforms, currently Indonesia is applying a full accrual system of accounting, an asset management system to support the accrual based statements for financial reporting, and is in the process of implementing a Medium Term Expenditure Framework (MTEF) and a Performance Based Budget (PBB).
Government Financial Management and Revenue Administration Program

With the support of the World Bank, GOI started the GFMRAP project. GFMRAP was GoI’s response to the 1997/8 Asian Monetary Crisis, when the GoI decided to implement a long-term public financial management (PFM) reform program. The GFMRAP loan agreement was signed in December, 2004 with the original closing date shall be on June 30, 2009. It was $80 million project of which $55 million was from World Bank, and $5 million from Grant.

Treasury in Indonesia

In the country there are 223 treasury offices, in which at the central level there are 8 directorate units. Meanwhile, at the regional level there are 33 offices of treasury (Kanwil) and 182 local treasuries which are called KPPN (Kantor Pelayanan Perbendaharaan Negara). The Spending Units to whom these offices provide payment/receipt services are approximately 24,000 spread across the country.

Total staff in the treasury is about 9,000. Of this 5,000 are located at the district level, 3,000 at the regional (provincial) level and about 1,000 at the central level. The total complement of IT staff is about 400. Of this 200 are at the central level, 170 at the district level and about 30 at the regional level. They serve around 80 budget users (line ministries/agencies) of the central government with over 24,000 Spending Units (Satkers) located all over Indonesia. However, with decentralization the Treasury of the Ministry of Finance is no longer responsible for managing the treasury operations at the sub-national governments.

The classification used in the Budget is Program, Organisation, Economic and functional and the same classification is used in the financial accounting. The Chart of Account (COA) for budget and expenditure are aligned. The method of accounting is cash-based in budget and full accrual in the treasury (started in FY 2015). At present, while the development of FMIS is already finished, the public financial management in Indonesia is supported by the in-house and distributed data based developed system used by MOF and all the line ministries for receipt and payment accounting. The reports are automatically prepared directly from the system without further re-processing in any other system such as spread sheets.

The Spending Units cannot make direct entry into the FMIS. This will be done at the local treasury offices (KPPNs) through data upload in the soft form. The most common method of payment is electronic transfer and around 1% payments of petty cash are made directly. No other payment, however is made by cash.

There is a Treasury Single Account which has been established in the Central Bank, in which all state receipts must be deposited in and all state expenditures are paid out from this account. It is done by closing a large number of bank accounts that were previously opened by different departments.

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14
It had three components in addition to the project governance component:

- Public Financial Management
- Public Revenue Administration
- Governance and Accountability

<table>
<thead>
<tr>
<th>FINANCIER</th>
<th>COMMITMENTS (In USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Bank For Reconstruction And Development (IBRD)</td>
<td>55,000,000</td>
</tr>
<tr>
<td>International Development Association (IDA)</td>
<td>5,000,000</td>
</tr>
<tr>
<td>Japan: Ministry Of Finance - PHRD Grants</td>
<td>5,000,000</td>
</tr>
<tr>
<td>Borrower</td>
<td>15,000,000</td>
</tr>
<tr>
<td>Total</td>
<td>80,000,000</td>
</tr>
</tbody>
</table>

Source - Worldbank (2004b)

The significant feature of the project was that it recognised that the problem that needed to be tackled was primarily an expenditure management problem and only secondarily an accounting system problem. The problem could be managed with better fiscal control and better cash management. On the fiscal control side the Government had to ensure that expenditures were in accordance with budget appropriations, there were proper recording of commitments, a close monitoring of outstanding bills and proper management of arrears and fiscal deficits. For better cash management thousands of bank accounts had to be brought into a single treasury account and idle government balances needed to be managed properly to improve remuneration through an accurate cash planning.

The project intended to provide an umbrella for locking in major policy and process reforms to strengthen efficiency, governance and accountability in PFM and the revenue administration; finance core investment and technical assistance to implement these reforms; and facilitate coordination of donor technical assistance.

The GFMRAP underwent two restructuring processes in 2009 and 2013 attributable to the delays in completing the development of SPAN and to extend the project final closing date till December 31, 2015. In March, 2009 when the GFMRAP project was first restructured, the objective of the project was scaled down by focusing more on public expenditure management and by not being the overarching reform umbrella envisioned in the original project.

The development of IFMIS through Sistem Perbendaharaan dan Anggaran Negara (SPAN) was a major component of the project, as from the total amount of GFMRAP fund, the SPAN contract itself was around USD 58.9 million, in which USD 46.9 is funded by the Bank to mostly finance the supply and installation costs while the remaining USD 12 million is paid from the government’s own funds to finance 5 years post warranty and recurrent costs. As the acronym SPAN suggests it was envisaged to be an integrated state treasury (Perbendaharaan) and budget preparation (Anggaran) system, as mentioned in the 2009 contract document. It is a core element of the government’s PFM reform program. It was envisaged to specifically support the modernized budget preparation and state treasury operations. SPAN’s three main
Motivation for IFMIS

Since Indonesia had experienced a major financial crisis in the late nineties, the crisis triggered a new thinking to bring about improvements in Public Financial Management which included changes in the legislation, delegation, transparency etc. Introducing best practices such as Performance Based Budget (PBB), accrual accounting, MTEF etc. and given the complexity of managing a country having a large number of islands, required a robust integrated financial management information system. Indonesia has about 24,000 Central Government’s spending units (Satkers) from different agencies spread across the nation. Some were connected but on various stand alone and non-integrated applications. With the parallel developments in Information Technology and specially connectivity, it became imperative to use an integrated IT-based system.

Although considerable time has passed since the loan agreement was signed with the World Bank in 2004, the primary motivation for IFMIS is clearly the intention to modernise the PFM systems and processes to improve various dimensions of governance. Therefore an integrated FMIS was an essential component.

Sequencing of major tasks in developing IFMIS

Contracting for a large ERP project is a complex process. To what extent one should package different components into a turnkey package and what to leave outside the package can be a strategic decision with both advantages and disadvantages. In case of Indonesia, the contracts were divided as follows and therefore separate consultants were selected.

- Turn-Key Integrated Commercial-off-the Shelf (COTS) Software Solution and Hardware Platform for the SPAN (Jul, 2009)
- Business Process Improvement (May, 2009)
- Independent verification and validation (2005)

Some of the advantages and disadvantages are discussed in the following paragraphs followed by lessons which can guide others in similar situations.

A. Turnkey COTS and Hardware Platform for the SPAN

The COTS for the SPAN was completed and launched by Indonesia’s President Joko Widodo in April 2015 at the Presidential Palace. SPAN is now being used by Ministry of Finance at DG Budget and DG Treasury headquarters, in addition to the 182 Treasury local services
offices (KPPNs) and 33 Treasury regional offices (Kanwils) all over Indonesia with 3,600 Oracle EBS and 200 Hyperion Planning users licenses serving over 24,000 spending units.

SPAN is the core of government’s public financial management reform program. It is designed to improve transparency, efficiency, and accountability of the government’s financial transactions through business process enhancement and integrated use of IT. It will support the implementation of accrual based accounting and facilitate the generation of real-time financial reports. The system integrates all business processes from budgeting to reporting. SPAN is one of tools to increase public spending efficiency as enjoined in the State Finance Law and is the embodiment of a modern treasury, a paradigm shift from administrative management to public financial management.

The benefits of SPAN are the following:

- Improved business processes with fully automated operations to effectively control budget allocation, expenditure commitments, and spending limits
- Availability of single entry point and centralized databases.
- Reduced human errors and potential frauds through data capture at source
- Providing comprehensive reports on government financial transactions that are generated through online, real-time reporting and accounting.
- Supporting the implementation of accrual based accounting system.
- Improved cash flow forecasts and planning with a reliable cash management system.
- Enhanced audit functions through the audit trail capability.
- More efficient submission and access of public finance information.

Scope and functionality of SPAN

SPAN consists of the COTS (Commercial Off The Shelf) software applications to provide the following functionality:

1. (Oracle) Hyperion Planning for Budget Preparation (DG Budget), consist of modules on annual budget preparation (APBN), non-tax revenue (PNBP), budget flow management (B-Flow), and monitoring and evaluation (Monev).

While Hyperion Planning and Oracle EBS are integrated solutions, these packages have different processing cycles during the year, in which Hyperion involves processing of budget data at specific times of the year while Oracle EBS follows the Budget Execution process, which involves continuous transaction processing throughout the year.

The SPAN solution consists of implementation of the following components:

1. Data Centre and Data Recovery Centre Fit-out
2. Cabling Installation in all sites
3. WAN (Wide Area Network) installation
4. Collaboration Environment (CE) Implementation
5. COTS Solution (Hyperion Planning & Oracle EBS) – Includes customized components
Another supporting application called Custom Web is also developed to support the interaction with the SPAN budget planning (Hyperion) and budget execution (Oracle EBS) modules through web portals.

SPAN is a treasury centric system because the Spending Units are required to send their payment requests to the designated treasury office for payment and budget allotment is recorded in the system. Since the number of spending units is very large they will not be connected directly. Later another system, SAKTI, will be used by spending units as the feeder application for SPAN, that will improve the integrity of data and reduce the waiting time of converting spending unit’s data on budget preparation and expenditure requests before uploading into SPAN.

SPAN interfaces with MoF applications of the other Echelon 1 Unit’s modules include Revenue collection, debt management, asset management, etc. and external interfaces such as to Central Bank of Indonesia and the commercial banking systems.

SPAN has been implemented gradually in 5 phases; Pilot 1, Pilot 2A, Pilot 2B, Rollout 1 and Rollout 2. The pilot of SPAN started on January 2014. The Pilot phase 1 was done for the users at MOF headquarters while the pilot phase 2 was held for the users at 7 selected large regional Treasury offices. It took only two months from the start to complete the Pilot at end of February 2014 that was supposedly followed directly with the roll-out. However, the start of roll-out had to be delayed due to lack of original server capacity to take on the load of all transactions which was only identified during the Pilot. It took several months to procure, install, and configure additional servers scale up until it is finally done and ready by end November 2014. But, MOF decided to postpone again the start of the Rollout till January 2015 since it was too risky to have the roll-out at end of a Fiscal Year knowing the daily transaction is expected to be almost 3 to 4 times higher than the regular normal load. Another reason to delay the Rollout was due to a requirement for conducting financial integrity assessment which was needed to ensure that the SPAN application could produce accurate and reliable data. MoF finally started the Rollout by January 2, 2015 and completed the Rollout at all locations in just a two months on February 28, 2015.

1. Issue on Procurement Delay:

The development of SPAN started in 2009, after a protracted delays in finalizing the procurement and selection process. There were some delays in finalising the two-stage bid evaluation process which prolonged for almost 4 years, from 2005 until mid-2009, due to complexity of the bid document with 434 technical requirements, the inexperience of the MOF officials to procure a large scale IT system using International Competitive Bidding (ICB) process and the capabilities of the bidders to understand and follow detailed administrative requirements in compliance with the World Bank procurement guidelines.

There was also a lack of sufficient support from future users who are used to working in legacy systems and doubted the benefit of COTS. At that stage the utility of SPAN was also questioned. Finally, in Feb 2008, an internal review by the higher authorities of MOF on whether or not to continue with the SPAN Project was conducted and this review reaffirmed SPAN’s importance as a foundation for PFM reforms. Since then, progress in the procurement of the SPAN as a turnkey solution accelerated.

Lesson – Procurement for IT systems is a difficult exercise. It is important for the country officials to be well-versed in donor procurement processes and develop a
critical path to ensure timely procurement. Financial management information system projects often take at least 6-7 years to complete, including project design, procurement, development of the information systems, and capacity building – thus spanning at least one election cycle. The long term commitment of both leaders and staff of the Project owner is critical to the successful outcome of the project.

2. Issues on Project Schedule and Hardware Delivery

Bid evaluation for the SPAN procurement was completed in February 2009, and only by the second half of 2009, was the contract signed and operationalized. With revision of the project plan for SPAN it was expected that work would commence in 2009 and run for 39 months to be finally completed in 2013.

However, at the end of 2013, only the development of the system (User Acceptance Test) had been completed and additional time was needed to pilot and gradually roll out the system to all locations across Indonesia. (The actual signing date of Final Operational Acceptance (FOA) for the project completion was made on 30 June 2015 or it is constituted as a delay of 30 months from the original plan with the total duration of 69 month from the contract effective date on September 2009).

The development and implementation of the software application has been delayed due to various reasons, the most significant of which were the challenges that the MOF and the SPAN turn-key supplier faced in addressing and resolving issues related to the unique nature of an IT project of this size, scale and complexity. These includes: the lack of sufficient experts employed by the turn-key supplier at the earlier period of the work; the high consultant turnover and challenges in finding consultants with the necessary technical and language skills; the additional requirements proposed by the MOF due to a continued change in regulations and/or business processes; and the lack of sufficient server capacity causing the poor and slow performance of the system.

While there was a long delay in completing COTS, the hardware has been delivered far earlier at all the user’s locations and was lying unutilised.

Lesson – A judgement has to be made on scheduling the hardware supply in such a manner that risk of obsolescence and waste of warranty period coverage could be avoided.

Another question which needs to be considered is whether the COTS contractor be given the contract for hardware also. In case the contract is given to same contractor then the delivery of hardware should be synchronized with completion (or near completion) of the software so that the hardware that is delivered is the latest available and most advanced technology at that time and it is put to use immediately well within the normal warranty coverage. Ideally, in a signed contract, the buyer must have a right to delay receiving the hardware up to the user acceptance test (UAT) completed. In case the contract is given to a different supplier, even then these questions remain relevant. The burden of integration of hardware and making the hardware ready for use with the

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2 Added later in 2015
COTS becomes government’s responsibility. The advantage in separate bidding for the hardware is that it can attract a larger number of suppliers in comparison to the turnkey for COTS and hardware. Further, in view of rapid technological advances, the performance of hardware available in the market continues to increase very rapidly while prices continue to fall. To take advantage of these factors, hardware procurement should therefore be phased so that it is procured as close as possible to the time when it will be installed and used.

3. Issue on Establish baselines early

In a large IFMIS project, it is essential for both sides - the government as well as the vendor to identify and understand baselines early. A software baseline library is established containing the software baselines as they are developed (SEI, 1995, p. 180). Changing the accounting framework as well as adopting of commitment accounting were some of the major changes incorporated. If the baselines are not established and agreed to there would be looping back and forth resulting in avoidable waste of time as well as effort. The turn-key contractor followed a system of presentations of Conference Room Pilots (CRP) in an iterative manner leading to freezing of the final understanding by both the parties. It took nearly one and a half year to complete CRP-I to CRP-III when the understanding was frozen. Conference room pilot (CRP) is a term used in software procurement and software acceptance testing. A CRP may be used during the selection and implementation of a software application in an organisation or company. The purpose of the conference room pilot is to validate a software application against the business processes of end-users of the software, by allowing end-users to use the new software to carry out typical or key business processes. A commercial advantage of a conference room pilot is that it may allow the customer to prove that the new software would do the job (meets business requirements and expectations) before committing to buying the software, thus avoiding buying an inappropriate application. The term is most commonly used in the context of ‘out of the box’ (OOTB) or ‘commercial off-the-shelf’ software (COTS).

Lesson- Clear identification and common mutual understanding of baselines between the vendor(s) and the Government is necessary. If it is not done, there would be waste of effort and delays leading to frustration on both the sides. It is also important for both parties (supplier and purchaser) to have agreed with a specific date after which the baselines and/or technical requirements shall be frozen and any additional change initiated after this time shall be dealt with later and to be processed as a change order with cost increase implication

4. Issue on Customisation of the COTS

It is established that more customisation in a COTS solution leads to high cost (Fryling, 2010). Customisation has advantages as well as disadvantages. Customisation improves user acceptance (Fryling & Adviser-Richardson, 2010), offers the potential to obtain competitive advantage vis-à-vis companies using only standard features (this might not apply to government) whereas it increases time and resources required to implement and maintain, inhibits seamless communication between agencies who use the same ERP system un-customized, it can also create over reliance on customization, undermining the principles of ERP as a standardizing software platform(Fryling, 2010).
In case of Indonesia although the sequencing was not most appropriate. The Business Process Improvement (BPI) consultant started the work almost concurrently with the start of COTS consultant. After the future business process was completely developed, it can be said that the customisation part to the COTS has been minimum with adoption of more than 90% of the business processes provided in the COTS. However, there are changes (customizations) as far as reports are concerned. Since reporting does not alter the management of the core business processes in the application, the approach seems practical and workable.

Lesson – COTS comes with standardized business processes and reporting to bring gains in cost savings, efficiency and productivity. Although the evolvement of COTS versions is benefited from the variation of different business processes of the users, the optimal benefit of applying COTS can be obtained when minimum customization is made and the future business process adjusted to be consistent with the applied standard of COTS.

5. Issue on Budget Preparation solution

In case of Indonesia, a fundamental reform was taken up with the reorganization of the Ministry of Finance in September 2004 which has followed the best practice of division of work between DG Budget for budget formulation and preparation process and DG Treasury for budget execution process.

The Indonesia’s COTS solutions for budget formulation and preparation uses Hyperion Planning of Oracle. It is an Enterprise Performance Management System that spans planning, financial close, operational analytic applications, BI tools, reporting, and data integration, all on a unified Business Intelligence platform. Hyperion Planning would be used to support the DG Budget in the preparation, simulation, allocation, allotment, virements, and monitoring and evaluation of the state budget. However, since the Hyperion Planning cannot practically hold the data and support the need for budget approval (including virements) for a very large number of Spending Units (24,000), problems were resolved by developing another custom application called Custom Web which would facilitate the steps in the budget life cycle (including virement approvals) at the spending unit (Satker) level.

The spending unit (SU) is the level at which the DG Budget is managing the budget approval, virement or budget revision and fund blocking (bintang). Thus any IT application which is used at the DG Budget level must connect to all the 24,000 spending units as its users. The Hyperion solution did not allow DG Budget to manage the budget at the Satker level. In order to have Hyperion operating at all the 24,000 SUs, it would have required to purchase many servers or otherwise the performance of the system would have been inefficient. The alternative solution was for DG Budget to change their requirement to allow budget approval only at Program Manager Level (Echelon 1) consistent with the principle of Performance Based Budgeting rather than to manage the budget of 24,000 SUs. However, the current regulations still required DG Budget to micro manage the budgets of those 24,000 SUs budget. It is understood that some important procedural requirements of DG Budget were also not included in the development of Hyperion. This created a peculiar situation necessitating another application called Custom Web to act as a bridge between Hyperion and the applications used by the SU.
In case of SPAN, it was envisaged to cover the budgeting life cycle and the budget execution part. Thus a three tier solution Custom Web->Hyperion->Oracle EBS would only be completed when all the three tiers are usable. But later it seems that due to different organizational priorities and perspectives, the full integration of all three tier solutions for a complete budget life cycle is not completely done since the Oracle EBS is already completed and Hyperion is not yet fully usable at present.

In many countries, budget planning, preparation and all the stages till the allotment and budget management (virements, supplementary budgets etc.) are handled in a separate system (For example, Timor-Leste, Mongolia, Vietnam, Antigua and Barbuda etc.) and budget allocation and/or execution data is exchanged between the treasury system and budget system using text-files. This can create problems, for example, if a virement is made while the expenditure has already been incurred. This cannot be called an integrated system but these may be intermediate solutions while the goal should be that the complete life cycle of budgeting (budget planning, preparation, different cycle of approvals, allotment, virement, supplementary, execution, reporting, final statements etc.) should be undertaken through a single integrated system. In doing so, it requires strong coordination among two DGs (Budget and Treasury). It seems in Indonesia the coordination and cooperation between two DGs to achieve one common goal is relatively weak. The problem was compounded with no special dedicated unit assigned in DG Budget to work on the development SPAN. Furthermore, it is also difficulty for DG Budget to freeze the baseline requirements due to change on priorities and direction set by the government to be responsive to shifting priorities.

The issue therefore is the establishment of a minimum boundary for keeping the scope of an IFMIS system on target. The vision could be that if the entire budget life cycle is to be covered in the IFMIS, the business process improvements have to include the systems and processes within budget as well as treasury.

With that vision in mind, it is possible to initially implement COTS on treasury side only but later budgeting systems could be included but this must form part of the implementation strategy and not as a later discovery.

**Lesson –**Integration of budget life cycle (planning, formulation, preparation, allocation and management) with budget execution (spending, monitoring, and reporting) appears a sensible choice, however, due to various reasons (both organizational and technical), it has remained a challenge in many countries. Therefore taking up both the sides together (budget formulation and execution) requires considerable clarity and contemplation at a macro level. At a practical level therefore it is necessary to first visualise if it is necessary to integrate the two and if so, to what extent. Full integration has many challenges – both organisational and technical and a clear strategy should be developed to meet those challenges.

Challenges in finalizing the budget preparation module (Hyperion and Custom Web) of SPAN to be fully usable and integrated with Oracle EBS, still exist. If it can be smoothly implemented as planned, the Indonesian SPAN project, which is designed and developed as one integrated system combining both budget preparation and execution modules in one platform COTS solution, will be one of a very few exceptional cases having this level of integration.
6. Issue of System Integration

Most modern COTS are multi module and consultants have different experts who have specialised knowledge of these specific modules. However, since these modules have to work in tandem with all the other modules, operations in one module in a particular way can affect the functionality of other module(s), thus reducing the benefits of integration. In some cases integration may become impossible due to differences in configuration parameters of the modules.

It is understood from Indonesian experience that the functional consultants initially configured the system in such a way that as far as the particular module was concerned it was working fine but it became difficult to integrate it in the whole system. If there was a Systems Solution Architect in the consultant’s team, it would have been possible to eliminate or minimise the integration problems of different module from the beginning.

**Lesson-** Consultant’s teams’ experience and knowledge of functional modules, as well integration, is crucial. It is possible that this was a problem with a specific consultant working on the Indonesian contract. Nevertheless, this is an important checkpoint and lesson for other countries. This aspect has to be looked at carefully while evaluating the capabilities of the prospective bidders for COTS. A Solution Architect in the team should definitely be a requirement.

7. Issue on Increased Volume of Data to be handled by servers

Large ERP implementation projects are complex and take a long time to implement. During this period many evolutionary changes take place in the environment. One of the most obvious and natural changes that takes place is that the organisations expand and the number of transactions therefore increases. A number of parameters while procuring the COTS are based on the-then requirements which might be two to three years old (or as in the case of Indonesia more than five years old (the time such estimates were made). It has been observed in many countries that the data requirements grow exponentially high during the implementation process itself or immediately afterwards. This results in contention in the use of servers, which ultimately leads to degradation of the access and processing speeds. Since governments have to follow public procurement procedures (or World Bank procedures) purchasing additional server becomes a difficult and time consuming exercise during the development of the project. This then could cause delays and frustration for all stakeholders.

Indonesia faced this situation and was finally able to acquire new servers to meet the expanded data and processing requirements even before starting the roll-out. This issue of lack of server performance was identified during the implementation of the Pilot when they found that the actual volume of payment transactions handled in SPAN was not anticipated. The data volume estimates during the bidding process were understated by as much as a factor of 10. The overload of original servers was caused by the new business process requirement for processing large number of payment on salaries and social aid (subsidy/grant) transactions for the millions of individual beneficiaries.

It is therefore necessary to account for this situation while deciding on the capacities of servers both in terms of data storage capabilities as well as response times.
Lesson- Understand the data storage and processing requirement fully. Projections in to future should be done to estimate what the “would-be” requirements are likely to be. One cannot buy tomorrow’s technology today but having a clear idea of the development environment and the “go-live” environment in terms of volume of data and the processing speeds and therefore response times, would be helpful. When the system is nearing deployment, a decision can be made to recalculate the hardware requirements based on the new understanding of the system and its specifications for ideal performance. There is no harm in erring on the higher side of data storage requirements, budget permitting.

8. Issue on Contract Changes and Price Variances

The SPAN contract was finally completed despite needing several change orders, time extensions and price increases. During implementation, a number of changes and additions were made to various areas and aspects of the SPAN Project for the following reasons: Scope changes, increases and/or decreases in number of licenses, introduction of new software (Hyperion and custom web) to address requirements or issues that were not anticipated in the original contract and were therefore deemed out of original scope, and the extension for the time of achieving Final Operational Acceptance (FOA).

From the time of contract signing on July 10, 2009 till the project closing date, the total SPAN contract price increased by around USD 17 million or 38% from the original contract price of around USD 42.8 million to be a total of USD 59.8 million, of which USD 7.6 million has been used to purchase additional servers.

All the changes were implemented through 16 (sixteen) Change Orders, which were prepared, negotiated, and requested by purchaser as a request for change under a consideration that the supplier has already delivered the original requirements as per bid requirements and contract.

Lesson – The IFMIS contracts are often made on a turn-key basis, and therefore changes to the original requirements during the period of 4-5 years of implementation are likely to increase the contract price. Hence, it is important to allocate sufficient budget for anticipating future price escalation from the original contract price.

B. Business Process Improvement (BPI)

BPI was aimed to provide rationalised future processes that could be incorporated in SPAN. The BPI consultancy contract was signed in -May 2009, a month before the signing of the contract with the Turn-key software developer. As mentioned earlier, this task was assigned to a different consultant and their recommendations were finalised long after the award of contract for COTS. The final recommendations which were taken as inputs to develop new business processes were frozen in 2011. A period of almost one and a half year therefore passed before the SPAN developer (LG) could effectively start work.

Lesson - The work of configuration should ideally begin after the requirement is frozen, or at least a majority of the business processes are frozen. This indicates a need to start the task of business process improvement/reengineering at a much earlier stage. Preferably this should be completed before COTS acquisition takes place. Practical considerations would however, indicate that minor changes alone could be left to later stages in the process.
As alternative, it is better to apply as much as possible the standardized COTS processes. However, implementing a large IFMIS without undertaking Business Process Improvement/Reengineering will limit the efficiency gain in the processes. Efficiency gain could be due to Information Technology or the gain could be due to improvement in the workflows in the treasury and/or budget office. In case of SPAN, the process of undertaking business process improvements and innovation started almost concurrently with the award of the contract for Turn-key COTS. The BPI process took about a year and half to complete.

There are two parts of business process improvement in a typical budgeting and treasury environment. Firstly in order to improve the antiquated, cumbersome and redundant processes, a new process is thought of which could reduce the steps and improve efficiency. This part may not need the presence or knowledge a particular COTS solution which is to be implemented. If the COTS solution is brought later on, this part may require a little tweaking to make it work in a particular way the COTS handles those processes.

The second part of the process improvement is brought by the so called “best practices” which are implemented in a particular COTS solution. If a practice is considered “best”, the different COTS which are implementing that practice should be same. However, in reality there are subtle differences in the manner in which these are implemented in EBS (Oracle e-Business Suite) or in SAP or any other ERP. Thus in case an organisation is adopting that best practice, they would have to make adjustment or changes to their business processes so that COTS could be configured to suit the requirements. This is the part which can only be done after it has been decided to implement a particular COTS solution. Moreover, COTS is commonly used by the private sector and designed to have one standard but it is not easy to have one common standard practice for the government sector, an observation which would equally apply to every government.

One very useful model adopted in Indonesia for doing BPI was first to develop a good quality description of the processes and iteratively improve them into high quality academic level papers and then finally adopt them and sign off. The project team developed 26 high level processes and 300 scenarios during process improvement. Though time consuming, it seems to have led to a due process which was be acceptable to all the stakeholders. This is worth adopting by other countries who want to undertake a viable business process innovation or improvement.

Since in Indonesia, the choice of COTS was made before the finalisation of BPI, it seems fortuitously to have turned out to be a positive decision. As a result of BPI, it is understood that a large percentage of standard processes in Oracle EBS have been adopted and a minimum customisation has been done for the reporting part only.

Identification of major business processes impacting the fiscal control and cash management could be identified as primary processes. Examining in detail every process as a candidate for re-engineering can be time consuming and would lead to delay in the system implementation. Streamlining of all other processes for example, approval process, would improve efficiency but are not really fundamental pre-requisites for system implementation.

Most COTS packages have standard best practices built into them, so there might not be a need to spend in the BPI on these aspects but pay attention to how these practices have been implemented in COTS.
Lesson – In case of Indonesia, BPI did not start before the start of work of COTS consultant. In fact, it started almost parallel to the COTS contract. Thus there was overlapping in the work and this overlapping gave an opportunity to the MOF to better understand the detailed business processes which could fit into the functionality of COTS solution. This ultimately helped in minimizing the customisation of the COTS. The customisation of reports does not fall in the category of true customisation as it does not affect the core business processes implemented in SPAN.

A question arose over the utility of getting BPI done using an independent consultant or through the same consultant undertaking the COTS configuration. There are advantages and disadvantages in both. In case of Indonesia, the BPI consultant was different; and it seems that this has worked well. The business analyst consultants for COTS in Indonesia hired by the turn-key supplier found to be incompetent to understand the business processes in the Ministry of Finance and incapable to provide solution based on the respective Oracle (EBS R12) modules. Furthermore, they did not include an experienced Application Architect who could integrate the business requirements across different modules. Consequently, the turn-key supplier found it difficult to identify business needs and determining solutions to business problems, therefore having two separate consultants reduced the risks for Indonesia.

C. Change Management and Communication:

In Indonesia case, CMC was intended to: (i) prepare stakeholders for the change; and (ii) manage the impact of change brought about by the implementation of SPAN and address the associated training needs for all staff/users who were expected to work with the outputs from SPAN. It covered the following areas:

1. Change Management, which addressed strategy and plans for managing key stakeholders that would be affected by SPAN implementation.

2. Communications, which addressed the need to manage, engage, and communicate with the apprehensions and aspirations of the MoF employees affected by the proposed process, system and structural changes.

3. Organisation Design, which addressed the strategic options for improving the overall operational efficiency and effective human capital utilisation in a post-SPAN implementation environment for the MoF, included addressing the resulting relocation and retraining needs of the employees.

4. Training, which addressed the training requirements of the MoF and related stakeholders’ staff, to enable them to operate effectively in a post-SPAN implementation scenario, including specification of certification programs based on job role requirements of the post SPAN implementation and guidance on managing the training service providers.

The CMS contract was finalised in Sep, 2010 again much after the award for COTS. The opinion of the CMC consultant though is that “it would have been better if this was done before hand”. As a part of novel change management and communication strategy, the Government had introduced a concept of change agents in different offices which would be affected by implementation of SPAN. One change agent (Duta SPAN) has been placed in each of the 182 KPPNs, seven in DG Budget and three in PUSINTEK (IT Centre in MOF).
The staff has been taken from the Ministry of Finance itself and has been provided incentives. There are 15 coordinators in Jakarta to keep the change agents informed about various developments. Interaction with one of the Change Agents in KPPN Denpasar office revealed that the main source of their information about SPAN is the project headquarters which issues a newsletter and also through the regional coordinators for the project.

The main challenge was to organise training for all users which were spread across Indonesia over a short time. This was in addition to the concept of change agent who had been made as ambassadors for the project. The training was to be conducted on the basis of role and on the basis of modules. There were about 16 different roles and six training modules for SPAN in the three main programs:

- Training for Trainers (TOT)
- Familiarisation Training
- End User Training (EUT)

Moreover, the method of “cut-over” instead of parallel run has been adopted at all the (users) KPPN’s locations. This method initially appears ambitious since this is going to switch from legacy to the new SPAN immediately after the successful completion of the pilot, in which the time period to train each level of users is short and a large number of trainers required to be deployed at a same time. However, with the ability of DG Treasury to deploy more than 180 trainers at the same time in many different user’s locations, it was found that at the end this “cut-over” method is effective since it has reduced the time required for doing the roll-out from original plan of 9 months to only 2 months. *(The time needed for completing the roll-out was only 2 months because all of the major issues such: system defects, legacy data conversion, lack of servers capacity, and financial integrity were resolved during the Pilot that took longer time to complete. Furthermore, the Pilot was held at selected large Treasury offices that manage almost 70% of data transactions so leaving the roll-out to be held at many locations but with only small number of transactions to be processed).*

**Lesson -** The concept of change agents to assist in the change management process is an excellent one and has created a positive environment for change, as observed in the field offices. Its overall efficacy to the success of the project would be useful to assess at completion. CMC played a vital role in keeping continuous project communications with end users and stakeholders; however, it would have been advisable to manage communication so as to not over promise as this ended up building high expectations even when the solution was not ready and the project was stalled for a long time.

### D. Independent Verification and Validation (IV&V):

IV&V was part of the initial requirement for the procurement using World Bank loan to assist in verifying and validating the procurement process. The IVV’s function was to maintain the integrity of procurement and contract management for SPAN and to provide the GOI and other stakeholders with independent professional support for implementation supervision and its expert assessment.

The procurement process in which the IVV supported included preparation of bid documents, preparation of technical and financial evaluation of bidders and recommendation of award of contract, post qualification of the recommended SPAN contractor, preparation of the draft
contract, and final negotiations and signing of the contract between MOF and the SPAN contractor.

E. Project Management and Quality Assurance (PMQA):

PMQA was appointed to ensure that the RPPN Program is structured, managed and executed following international standards of project management and quality assurance consisting of: planning and implementation activities related to the project, quality assurance on all vendor deliverables, management of change-control, and monitoring and evaluation.

Through a fresh competitive bidding process, the same company who worked on IVV was appointed again as Project Management and Quality Assurance (PMQA) consultant. As PMQA they are acting as an aid to the MOF for various project management issues and evaluation of achievement of various mile-stones. This helped because they had the knowledge of the project, hence the learning curve was short, especially since the project schedule was becoming very tight. Their prior knowledge of the project as the IVV consultant helped PMQA in aiding the MOF in identifying project risks and taking measures to mitigate them. While the PMQA has been active in identifying the factors behind the delays, the fact that the project was still experiencing long delays showed that there was scope for improvement in project management. For example, if they had taken more pre-emptive mitigation approach to minimize or contain the risks, it was possible that the schedule would have seen lesser delays.

Lesson – In case the capacities to manage such a complex project are lacking in the country, it is necessary to have a specialised PMQA consultant placed in adequate time after the contract is operationalized. In Indonesia, the same consultant who did IV&V work also worked as PMQA, this seems to have helped the project. There is a potential risk of tunnel vision, if the two roles are combined at the beginning of the contracting process.

Other Applications to support SPAN

In Indonesia, a number of software applications were already in operation in many agencies for different purposes. They are fulfilling their narrow objectives as normally small systems do, however, when it comes to integration and enterprise wide applications, such applications prevent seamless integration.

The applications which are being used by different agencies are shown in the table below. A brief explanation about the function and the user group which uses these applications is also given. Some of these applications have been replaced by SAKTI or interfaced with SPAN.

<table>
<thead>
<tr>
<th>Application</th>
<th>Description/Function</th>
<th>Unit</th>
<th>Note</th>
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<tbody>
<tr>
<td>RKAKL-DIPA</td>
<td>- Budget preparation (RKAKL)</td>
<td>SU’s (Spending Units)/DJA (DG Budget)</td>
<td>Will be replaced and to be part of SAKTI</td>
</tr>
<tr>
<td>Rencana Kerja dan Anggaran Kementerian/Lembaga-</td>
<td></td>
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Table 2- Different Applications
<table>
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<tr>
<th>Application</th>
<th>Description/Function</th>
<th>Unit</th>
<th>Note</th>
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</thead>
<tbody>
<tr>
<td>Daftar Isian Pelaksanaan Anggaran</td>
<td>allotments (DIPA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PERAN</td>
<td>Contract data &amp; disbursement plan</td>
<td>SU’s/DJA/DJPB (DG Treasury)</td>
<td>Will be replaced and to be part of SAKTI</td>
</tr>
<tr>
<td>SPM (Surat Perintah Membayar) / SP2D (Surat Perintah Pencairan Dana)</td>
<td>Payment Order Funds Transfer Order</td>
<td>SU’s/DJPB</td>
<td>Will be replaced and as a part of SPAN</td>
</tr>
<tr>
<td>MPN (Modul Penerimaan Negara)</td>
<td>State Revenue Module</td>
<td>DJPB</td>
<td>Remain and interfaced with SPAN</td>
</tr>
<tr>
<td>SIMAKBMN (Sistem Informasi Manajemen dan Akuntansi – Barang Milik Negara)</td>
<td>Management and Accounting Information System for State Owned Assets</td>
<td>SU’s/DJKN (DG State Assets)</td>
<td>Will be replaced and to be part of SAKTI</td>
</tr>
<tr>
<td>Gaji</td>
<td>Payroll</td>
<td>SU’s/KL (Kementerian-Lembaga or Ministries-Agencies)</td>
<td>Remain and interfaced with SPAN</td>
</tr>
<tr>
<td>AFS (Aplikasi Forecasting Satker) eKEDA (Kebutuhan Dana)/ eKirana (Perkiraan Dana)</td>
<td>SU Cash Forecasting Cash Management/Requirements</td>
<td>SU’s DJPB</td>
<td>Will be replaced and to be part of SAKTI</td>
</tr>
<tr>
<td>DMFAS BI-SSSS (Bank of Indonesia Scriptless Securities Settlement System)</td>
<td>Debt Management and Financial Analysis System Government securities mgmt system</td>
<td>DJPU (DG Debt/Loan Management) DJPU/BI (Bank of Indonesia)</td>
<td>Remain and interfaced with SPAN</td>
</tr>
<tr>
<td>SAPP (Sistem Akuntansi Pemerintah Pusat)</td>
<td>Central Government Accounting System</td>
<td>DJPB</td>
<td>Will be replaced and as a part of SPAN</td>
</tr>
<tr>
<td>SAK (Sistem Akuntansi Keuangan)</td>
<td>Agency Financial Accounting System</td>
<td>SU’s</td>
<td>Will be replaced and to be part of SAKTI</td>
</tr>
</tbody>
</table>
Ideally as a comprehensive IFMIS system, the new system could perform the tasks of budget preparation, budget allocation, budget execution and reporting. The reporting will include both in-year reports as well as the final account statements thus replacing the legacy systems currently performing these functions. Further, a new integrated system may have other long term advantages in terms of the low maintenance cost, ease of management, and less modification and the disruption that accompanies it.

In an IFMIS, the two important components are Budget and Treasury. The budget component starts with preparation of budget, subject to MTBF/MTEF in a broader sense, and constrained by the system of budget and the basis being followed which could be accrual, cash, program budget or any other type followed in the country. The stages of the budget life cycle have to be related to the operational part of the strategic plans, various iterations of planning, passing by the legislature, distribution of the budget to the spending units, in-year adjustments of the budget in the form of supplementary budget, amendments, virements etc.

The treasury component, on the other hand executes the budget within the framework of various rules and regulations relating to procurements and disbursements in the country. It also meets the statutory reporting needs as well as management information needs of various stakeholders. Treasury also executes a cash management plan, if any and contributes in preparation of such a plan and is thus the custodian of the government’s cash. This could be made easier if a TSA is also established in the country. The Indonesian MOF has made significant progress in consolidating government balances into the Treasury Single Account (TSA). The TSA mechanism has included: (i) a daily sweep of all revenue accounts into the TSA; (ii) zero based balances maintained by end of each day for all 182 KPPN accounts; (iii) virtual pooling of all imprest/expenditure accounts maintained by the spending units to compute the Government’s daily cash balance; and (iv) a MoF-BI MOU requiring interest to be paid on cash balances in the TSA, providing incentives to optimize the use of such balances. Hence, it can be said that Indonesia has the prerequisite conditions to implement the IFMIS.
A. SAKTI

The SPAN system would be operational at the 182 KPPNs to provide services to 24,000 spending units. Previously, the 24,000 SUs were connecting to MOF using various different standalone applications and had separate databases. In order to harmonize the applications of Spending Units with SPAN, it was thought necessary to have a middle layer application which would serve all the needs of SUs (Budget planning, preparation, commitment, payment, reporting, execution including fixed asset registers, inventory and other information support for accrual statement etc.) in one integrated application with a centralized database. The contract for developing this application was awarded in 2012.

This application would feed data about the request for payments into SPAN from all the SUs. These SUs are spread all over the country, the connectivity of these units is based on different technologies. Therefore, SAKTI is being designed in such a way that it could be used either in an online, off-line or a LAN environment. The data would be piped into SPAN via a portal and since the SAKTI is still under development it has created a dependency risk for the implementation of SPAN. This risk has been mitigated by continuing the use of legacy application (SAIBA) to be connected with SPAN before SAKTI is completed.

Other alternative is to connect SUs directly with SPAN. However, providing online access to SUs for the purpose of payments and budget preparation stages directly to the COTS appears to be very expensive and it is worth undertaking a cost benefit analysis since most SU spending will be limited to predictable items like salaries and other discretionary expenditure may be small. If the number is large, as is the case in Indonesia, this cost could run into many millions of dollars in licensing costs for EBS as well as Hyperion. However, once SPAN is operational through SAKTI, payment requests can be uploaded and SUs can also participate in the budget preparation process using Custom Web.
During the discussions with the developers of SAKTI, it appeared that SAKTI is a fairly complex application and therefore, successful completion and rolling out to the 24,000 SUs would remain a challenge, not only in term of the technical issues but also in term of training of thousands of SUs staff. The link between SPAN and SAKTI is an essential component and the success of SPAN therefore becomes dependent on success of SAKTI in terms of the application functionality, as well as its being rolled out to all the locations of SUs. As an expedient measure, the two have been de-coupled for successful roll-out of SPAN but in the long term, the success of SPAN is dependent upon the successful operation of SAKTI and the data which SPAN receives from it.

By end of 2015, the development of SAKTI is nearly completed with the plan to go Pilot by early 2016. If the result of Pilot at selected SUs within Ministry of Finance is successful, the plan for having a big-bang deployment to all 24,000 SUs across Indonesia would be done in the beginning of FY 2017 altogether in one time.

Lesson –There are many organisations which have a number of small applications which are performing small tasks well. In a simple combination of manual and automated processes these applications would be helpful. But as we move up to gain substantial efficiencies and accuracies in the financial information, these applications could become bottleneck.

A study by research firm IDC (2002) based on 1,350 interviews indicated that more than 80 per cent of CIOs (Chief Information Officers) and CTOs (Chief Technology Officers) believed integration was either mandatory for addressing mission-critical activities or a key enabler for meeting business-critical needs. Integration is therefore a challenge that is as common to commercial organisations attempting large-scale integration projects as it is to governments(Lam, 2005, p. 513)

While thinking of an integrated solution, it may possibly not be advisable to conceive of an expensive solution to be implemented at thousands of locations thus increasing the cost of licences etc. However, at the same time to bridge the gap, it must be considered that the new application(s) which are created are not complex and do not become obstacles in integration.

Other issues

A. Top management commitment for the project

When initially conceived in 2003-2004, the project began with good support from the top management. As the project progressed and delays started to occur due to various reasons the support also kept on varying. This period also saw five changes in the Finance Ministers from 2004 till date. At one stage the utility of SPAN was also questioned and therefore a review was conducted. The review, however, concluded that the project was essential.

The treasury and budget sides also saw many changes in their Director Generals.

When the project implementation period is long, it is a difficult challenge to keep the high level of support from the top, especially when as a result of elections the government also
changes. It goes to the credit of Indonesia that support both from the political as well as bureaucratic levels remained strong enough to complete the project.

To help the top management understand issues and make a right decision solving that issues, it is also important to get inputs from the internal auditors who could identify any compliance gap before it is found as irregularities by the external auditors. The Indonesia MOF internal auditor closely involved to identify the risk and provided advice to solve the issues faced by the project, particularly on any administrative and contractual problems.

**Lesson** - The positive lesson from Indonesia is that the project team has conducted regular weekly monitoring meetings with the technical team and frequent Steering Committee meetings with higher level officials of the COTS contractor. The higher level MoF officials have actively participated in these meetings to assess progress and resolve issues. Another positive lesson in the case of Indonesia is the strong involvement of the MOF Internal Auditor (MOF-Inspectorate General) to conduct a financial integrity review for ensuring zero application errors/defect of SPAN application to produce a reliable and valid data before the hand-over and a thorough administrative due diligence through the RTM (requirements traceability matrix) in which the actual delivery from the supplier will be compared with the initial requirements stated in the bid documents so when the final payment was made there are no supplier’s obligations left undelivered.

**B. Project Management**

Initially the project management component was with the Project Support and Services Unit (PSSU), which at the same time served as the project implementing unit for the SPAN. Even though the staff was adequate in number, many had limited experience in project management, including procurement which was the bulk of the PSSU’s activities, and staff had to be trained. The routine redeployment of personnel within the MOF resulted in a frequent turnover among PSSU staff and need for re-training on procurement methods, in particular the WB procurement guidelines. According to the staff involved, the procurement activities were usually performed after office hours since these activities were not part of the assigned personnel’s “structural” functions, consequently they often experienced delays.

Beginning 2009, the MOF Secretariat General started functioning as the GFMRAP Executing Agency and the PSSU was placed under this office with its own staff, separate from the DG Treasury where it was originally based. A new PIU under DG Treasury was formed and it took over the project management for SPAN, i.e., Directorate for Treasury Transformation.

**Lesson** – While it is expected that the resources assigned to the project will continue thus building knowledge and ensuring its transfer from external experts. As it took almost 6 years to complete the project staff turnover was bound to happen. An attempt has been made to mitigate the risk of losing project knowledge with the establishment of project collaboration environment (CE) on a Microsoft SharePoint platform that was used effectively to document and monitor issues throughout the project. Utility of this would be realized in future.
C. Creation of Treasury Transformation Directorate

Early in the implementation of SPAN, a separate Treasury Transformation Directorate was created. This directorate was adequately staffed to manage the business process improvements. This helped in improving the project execution. However it was not the case in DG Budget where the group (Budget System Directorate) that had the responsibility for SPAN had other regular work also.

Lesson – It is beneficial to have a special dedicated unit to work on the development of FMIS project. In the case of SPAN when the project has been completed, the unit may not be required. The next challenge is moving from the Project mode to the Routine Based Activities. Within the project mode, a responsive service 24/7 was provided by the staff of Treasury Transformation Directorate to resolve user problems. However, when the project is complete the new work process must be established for routine day to day activities.

D. ICT Shared Services and Service Desk

The IT infrastructure for SPAN is be operated, managed, maintained, and supported by PUSINTEK (MOF ICT Centre Unit) through the ICT Shared Services that it provides to the units within MoF. PUSINTEK manages Data Centre (DC) in Jakarta and Data Recovery Centre (DRC) in Balikpapan. DRC, as the name implies, should be Operated in case all SPAN System Infrastructure in DC was unavailable or have major damage caused by force majeure. The main database for SPAN application is synchronized periodically between DC and DRC so DC and DRC always have same data.

PUSINTEK performs the following activities to support SPAN:

1. **ICT Shared Services Strategy** - Provides with a strategy to sustain the ability to manage, operate, maintain, and support the infrastructure for SPAN through implementation of IT best practices such as ITIL (IT Infrastructure Library) for IT service delivery & support and COBIT (Control Objectives for Information and related Technology) for IT management.

2. **Service Desk** - To provide support for the SPAN user base & ensure the smooth and efficient operation of the SPAN Solution.

Lesson – the Indonesia case of shared service for SPAN is a good start. It needs to be continued with the development of Ministry wide ICT policies that will keep costs minimum and reduce redundant costs and duplicated resources. This will also help sharing of data and applications within the ministry and outsiders. Data Warehouse as the only source of the valid and reliable data to be accessed by both internal and external users would be very useful.

E. Start Chart of Accounts First

Among other things, government business processes and decisions are anchored on the flow of specific financial information/data between various stakeholders. Providing such information on government activities is an important function of the accounting and reporting system which should capture, classify, record, and communicate relevant, reliable, and comparable financial information at least for the following purposes: budgetary accounting
and reporting, including reporting of actual against approved budget estimates; general
purpose financial reporting; management information; and statistical reporting. This system
underpins the collection and use of public resources and informs policy makers, managers of
government agencies, parliamentarians and the public at large on government policies and
operations. The COA is a critical element of the PFM framework for classifying, recording
and reporting information on financial plans, transactions and events in a systematic and
consistent way (Cooper & Pattanayak, 2011). In simple terms, the COA is an organized and
coded listing of all the individual accounts that are used to record transactions and make up
the ledger system.

Now with the modern IT systems it is possible to adopt Economic, Functional or
Administrative, or any other classification, required for the country or for international
information needs such as use of GFS, SNA etc. The COA should also help in maintenance
of accounts based on the particular type of budgeting (PBB for example) as well as
methodology of accounting –accrual, cash or any mix of it.

Indonesia, seems to have done a good job of structuring their 12-segment COA to meet their
reporting requirements as expected by their laws as well as other MIS needs. Indonesia has
reached an ideal situation where there is no difference between the budget preparation and
execution side of the COA. There is complete harmonisation between the budget (allocation)
side and the budget execution (accounting) side of the COA. The next step is to set up a
special dedicated unit that will manage this COA and will be the only one to have the
authority to change and modify the COA to ensure consistency across different systems.

It has been observed in some countries that the COA for budget and COA for accounts are
not in unison. This creates enormous difficulties in budget execution, and especially in
reporting because the real-time and online benefit of the reporting is lost despite the fact the
country might be using an IFMIS. An intermediary patch work is required to generate
relevant reports which may leave room for errors and delays.

**Lesson**- **COA is possibly the most critical element of a well-functioning PFM system**.
In order to maximise the gain in implementing IFMIS, COA should be organised in
such a way that it should meet the business requirements of the Government. It should
be done early in the implementation stages so that all the reporting requirements could
be met. If it is done well, both current as well as future needs, would be adequately met.

F. Post Implementation Issue

After the SPAN piloting and rolling out completed, MOF continued to have some issues to
enhance effectiveness of the SPAN investment and sustainability of the system. At the
beginning of SPAN implementation, many complaints raised by the users related to slow
performance and quality of reports mostly due to error on data conversion originated from the
legacy system. Data error was caused by many external systems that affect the quality of data
input to SPAN and many reporting and reconciliation processes with uncontrolled parameters
input by users. It is added with the issue on low quality of country’s IT networks which has
been improving but still many unstable in some remote areas.

Another difficulty is to train the 3,600 SPAN Core users in a very short time to make them
not only comprehend of basic operations but also to understand of solving found problems.
Furthermore, the size of data and the number of transaction increase unexpectedly very fast, from revenue, payroll and social assistance payment transactions.

Lesson- in Indonesia the IT Support Unit and Service Desk not yet mature enough, with no shifting 24x7 works and lack of monitoring on the quality of the system performance. Ideally, (i) the MOF staff and consultants for IT Support and Service Desk are essential for working in full 24x7 operations, (ii) the staff must be able to work in shift for 24 hours, (iii) continuously tuning and moving most of reporting and reconciliation process to Data Warehouse, (iv) communicate continuously to external systems ensuring the quality of data input to SPAN; and (v) stabilizing the IT networks for all locations across the country.

G. Medium Term Agenda:

Completing the development and implementation of a modern IFMIS is a significant challenge in any country, and it was particularly challenging in the Indonesia due to various reasons brought out in this study. Multiple information flows among different elements of the system had to be closely integrated to achieve the full advantages of automation. The following issues are being addressed by MOF as the post-implementation phase continues.

- Put in place a governance structure to establish clear and well-accepted guidelines to integrate all subsystems needed to support robust and efficient Government Fiscal Management System.
- Strategy to retain good calibre IT staff to manage and sustain the technical environment required for a GFMIS.
- To realize the full benefit from the significant investment made in SPAN, MOF will link all other unit’s applications to SPAN with priority given to connecting: Debt Management systems, Procurement Management, Fiscal Balance, Asset Management systems, Payroll and pension systems and Auditing and e-Auditing systems.
- The Governance rules must promote collaboration while minimizing encroaching into the fiscal responsibilities of the other MOF units. The systems and subsystems of each unit must be integrated in the sense that their various component modules can exchange data and there is a single secure point of entry for commonly used data. However, data in the system databases must be available to and easily accessible by all other relevant organizational units.
Background

At the end of the War in 1975, Vietnam effectively had two economic systems – a centrally planned system in the north and a market-based system in the south. However, soon after national reunification in 1975 to 1989, Vietnam remained a centrally planned economy. The introduction of the reform policy known as Doi Moi in 1986 marked the beginning of the opening up of the Vietnamese economy.

Vietnam has four levels of government: central, provincial, district and commune. The country is divided into 58 provinces and 5 major cities with provincial status, which in turn supervise 698 urban/rural districts and provincially managed cities/towns; these are further divided into communes, wards and townlets. Each level of government has a People’s Committee which serves as its government, and reports to a People’s Council. Provinces receive a predetermined share of nationally determined taxes collected in their area, together with equalization transfers to ensure that all provinces are able to provide at least a minimum level of services. During the Doi Moi period, in order to facilitate efficient allocation of resources and in an attempt to meet the needs of local population, the Vietnamese government introduced an extensive fiscal decentralisation programme. As a result, the share of subnational governments in total expenditures increased from 26% in 1992 to 36% in 1997 and to 43% in 2001. In 2001, substantial changes to the existing arrangements were made that led to further decentralisation. A new State Budget Law was approved in 2002 (Nguyen & Anwar, 2011).

Impact of Asian financial crisis of late nineties

The 1997 Asian financial crisis came as a wake-up call to Vietnam’s leaders. Since Vietnamese currency, the Dong was not traded, the immediate impact was not dramatic. The subsequent regional slow-down did lead to a decline in the growth rate from near ten per cent to approximately five per cent, a sharp reduction in the level of foreign direct investment (FDI) commitments and looming fiscal and balance of payments problems. The Government as a result recognised a need to seek additional assistance from the IMF. At the same time, new vigour was added to an ongoing domestic political debate over the direction of ‘doi moi’.

As a result of the Asian financial crisis, a much strengthened commitment to reform emerged. During 2000 and 2001 the Government took a number of major steps: a trade agreement with the US; announcement of the intention to join the World Trade Organisation (WTO); implementation of significant new tariff reductions; re-affirmation at the 9th Party Congress of the principles of market reform, and proposals for more determined implementation; a Letter of Intent accepting IMF funds and committing Vietnam to reform milestones; and a strengthened Public Administration Reform (PAR) programme, including downsizing and deregulation (Painter, 2005).
Reforms

The process of reforms in Vietnam started in 1986 in the *doi moi* (renovation) (Boothroyd, Nam, & Phạm, 2000, p. ix) policies which made a major change in the direction towards a ‘socialist market economy’. The 10-year Socio-Economic Development Plan endorsed by the Ninth Party Congress in April 2001 had set ambitious goals for poverty reduction and economic growth. Public Administration Reform (PAR) was acknowledged as a key element in achieving the goals of the plan, particularly through ensuring more efficiency in state management, reduction in corruption and a new ‘public service’ orientation in dealing with citizens. The program had started a decade earlier and received endorsement as a coordinated PAR strategy at the eighth plenum of the seventh Party Congress in 1995. Later a review was conducted and a 10 year Master Program for Public Administration Reform (2001-10) was adopted (Painter, 2003). In this the seven areas of importance identified were:

- renovate the development, issuance and quality improvement of legal normative documents
- roles, functions, organisational structures of the agencies in the administrative system
- staff downsizing
- quality improvement of the contingent of cadres and civil servants
- salary reform
- renovation of financial management mechanisms for administrative and public service delivery agencies
- modernisation of the administrative systems

Treasury in Vietnam

The treasury operations in the country have been organised in such a way that there is a treasury office servicing ministries, provinces, districts and small towns. The total number of treasury offices is 211 – one at central level, 33 at regional levels and 178 at the district level.

There is a Treasury Single Account in the country and bank reconciliation is done on a daily basis.

The total number of staff is 8,000 – 50 at central level, 1,200 at regional level and 5,000 at district level. There are 401 IT staff – 190 IT staff at central level, 33 at the regional level and 178 at the district level.

The Budget follows program classification and the same is followed in accounting. The Chart of Account for budget and treasury are unified. For the agencies the accrual principle is followed for budget preparation while budget is approved on cash basis while modified cash is followed for accounting.

The coverage of FMIS is for all the payments and receipts. All in-year reports are taken from the IFMIS without any further processing in spreadsheets etc.

All the payments are made through electronic transfers. For payments, the spending units have to submit the payment requests to the appropriate designated treasury.

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The challenge under *doi moi* was to transform the state from one that managed and controlled collectively owned production processes to one that governs ‘across sectors’ (Painter, 2003). Particularly the socialist state accounting system in Vietnam was geared to recording transactions for statistical and revenue purposes, not for reasons of public accountability. The extraction of taxes from surpluses generated by state owned economic units was the main fiscal purpose of the system. During 1990s, a number of reforms were set in train to transform the system of public finances. A new State Budget Law was adopted in 1996; in 1997, an internationally accepted classification system and standards were adopted for reporting expenditures; and a uniform budget manual was distributed for 1998 budget. A Public Expenditure Review and a Public Investment Programme were initiated with the help of international agencies. For the first time, the government published the state budget in 1999 (Painter, 2003, pp. 259-271). Government’s strong public commitment to reforms brought the issue to centre stage.

**Public Financial Management Reform Program**

In Vietnam as in other similar transition economies, the pre reform situation was characterised by a lack of appropriate legal and institutional framework. As a result in Vietnam the treasury project required setting up of institutional structure and accompanying systems, *ab-initio*, as the country moved to market economy. Thus the canvas of PFM reform agenda was vast in order to cover all these aspects.

In 2003, a Public Financial Management Reform Program (PFMRP) with donors’ assistance was initiated to strengthen budget planning, execution, reporting and accountability. The government felt an urgent need to accelerate reforms to strengthen and integrate core treasury and budget management information systems; to strengthen the links between budget management and the developmental goals set out in the Government’s Comprehensive Poverty Reduction and Growth Strategy (CPRGS) within a medium-term expenditure framework; and to improve the management of public debt and other fiscal risks. Public financial management reform was one of the four focus areas within the Government of Vietnam's Public Administration Reform (PAR) Master Program for the period 2001 - 2010. Other focus areas included organizational restructuring, pay and employment reform and institutional development. The financing of the program was as follows (Worldbank, 2003b, p. 4).

<table>
<thead>
<tr>
<th>FINANCIER</th>
<th>COMMITMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Development Association (IDA)</td>
<td>54,327,375</td>
</tr>
<tr>
<td>UK: British Department For International</td>
<td>9,987,340</td>
</tr>
<tr>
<td>Development (DFID)</td>
<td></td>
</tr>
<tr>
<td>Borrower</td>
<td>7,140,065</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>71,454,780</strong></td>
</tr>
</tbody>
</table>

Source - Worldbank (2003c)

PFMRP project was expected to be completed by August, 2008 (Worldbank, 2003a, p. 15). The credit and grant agreements were signed in June, 2003.
Motivation for IFMIS

Vietnam treasury had been using different home-grown IT applications since 1996. There was a need to integrate these applications to achieve higher levels of efficiency and accuracy. In addition to other requirements which follow from the reform agenda, the 2002 Budget Law also mandated that the State Treasury should manage an Integrated Financial Management Information System (IFMIS). This clearly made it possible to visualise a large system to manage budget and expenditure in the country. This was in line with the similar projects in Russia and Kazakhstan where they first started with custom developed applications which provided core functionality and then moved to COTS based FMIS solutions. This also helped them to some extent clarify their requirements from an FMIS system.

**Lesson – It is important to have a wider vision for Integrated IT systems to help them contribute to developing modern Public Financial Management in today’s context.**

Procurement and Contracting

After following the process recommended in the loan/grant agreement, the contract was signed with IBM in December, 2005 (MOF-Vietnam, 2005). It was expected that by April, 2008, the system would be tested in the pilot sites and then rolled out to all the provinces, ministries etc. The application **Treasury And Budget Management Information System** (TABMIS) was targeted to be completed in 48 months. Full implementation was expected to be completed in the first quarter of 2010.

For TABMIS, the turnkey procurement was chosen. The following components were bundled as a turn-key in the procurement process (Worldbank, 2003b, p. 40):

- Training and change management program
- Installation and configuration of TABMIS in Treasury head office, MOF, MPI (Ministry of Planning and Investment) and one pilot province
- Roll-out to all Treasury offices in provinces and districts
- Roll-out to Finance Departments and planning departments at provincial and district levels

According to PAD Document, to bundle the procurement of TABMIS into one turnkey was a well thought out decision, as stated in the document (Worldbank, 2003b, p. 58)
The TABMIS procurement strategy and packaging – i.e. single "turn-key" versus multiple contracts - was carefully discussed taking into account experience in similar Bank-assisted projects and elsewhere. The major risk of a single large contract is that the entire project success depends almost totally on one contracting party and its skills and experiences. Major benefits include a single and consistent solution design and function, shifting many risks to the contractor; and a significant reduction in the potential for project conflicts, disputes and disruptions. The multiple contracts approach can bring benefits such as more control by the PMU, reduced risk of dependence on contractors.

Scope and functionality of TABMIS

TABMIS is based on a central system at the central treasury in Hanoi.

The following functionality is provided in the system:

- Budget administrators at the MOF, Provinces and District Finance departments can directly carry out processes related to budget management such as budget apportionment, budget allotment, budget releases and budget transfers.
- At the centre, the province and the districts can directly connect to the system to carry out the processes related to budget execution.
- Commitments can be recorded in the system before the expenditure can be incurred
- All the revenues can be recorded in the system
- All the transactions are posted as they occur
- Allows cash management
- Provides for fiscal reporting

It is a treasury centric system because the Spending Units are requires to send their payment requests to the designated treasury office for effecting payments. The budget allotment is recorded in the system. Since the number of spending units is very large, this work has been decentralised and the finance departments are allowed access to the system to make allocations of budget in TABMIS.

In addition, the system has interfaces with TCS (Tax Collection System), Interbank payment system, KTKB (the legacy system) etc.

The technical design of TABMIS is based on public sector version of Oracle Financials (EBS- Version 11) with a centralised architecture. The central server is located at Hanoi. TABMIS has been rolled out in all the 63 provinces with 697 district treasury offices and the finance offices of in these agencies and 37 central ministries, 3 departmental agencies of Hanoi city. The FMIS includes Accounts Payable, Accounts Receivable, General Ledger, Budget Preparation, Commitment Control and Contract Management. The application is Web-based.

The system has been functioning at all the locations for almost a year now.
and lower costs. Major risks include difficulty of contract management and especially the synchronization of multiple independent parties involved in delivery. Overall, the risk of system failure due to weaknesses in contract management capacity and potential lack of synchronization and consistency of the system appeared to be greater than the benefit. Therefore, the single turn-key approach has been selected. Measures for mitigating the risks associated with this approach include increased quality of the Bidding Documents, bid evaluation and contract, careful scrutiny of CVs and references with controlled resource replacement and right to reject unsuitable resources and the use of an Independent Verification and Validation (IV&V) adviser to ensure close contract management. Advanced training of PMU procurement and technical staff on Information Systems (IS) procurement is also foreseen.

Lesson – There are advantages and disadvantages in packaging the contract and asking bids for a single turn-key contract. A country has to weigh all options and then decide. It will be helpful if the country could assess the capabilities of vendors before deciding on this. However, a turn-key contract does not absolve the country of its responsibilities and still requires considerable investment in the management of the project by the country itself and this should not be underestimated, as the experience in Vietnam has shown.

TABMIS

TABMIS was the largest component of the PFMRP. It has taken almost 8-9 years in implementation. This is near the average time calculated in the World Bank study (Dener et al., 2011, p. 7). There was a legacy system called KTKB which was used in the treasury offices. This was a standalone system based on Oracle database (it is based on Oracle 7/8i and was working at 700 locations in standalone mode). TABMIS was supposed to replace KTKB, the legacy system in the State treasury, and implemented in financial agencies as well.

Stages of the project

TABMIS project was to be implemented in 5 phases:

- business process analysis and design
- system design and development
- system integration
- system roll-out
- system support and maintenance

According to the original plan, by mid-2010, TABMIS was expected be rolled out nationwide to all Treasury offices, Finance Department, Ministry of Planning and Investment, Provincial Departments of Planning and Investment, and all pilot on-line ministries and spending units.

It was expected that the business process prototype design, detailed values of the new accounting regime segments to address completely all the related business issues such as financial statements, interfaces, data conversions, and system upgrades would serve as the basis for system design.
A comparative study on TABMIS processes and design was conducted to analyse TABMIS impacts on the legacy organizational structure, so as to propose a new organizational chart to adapt TABMIS in the future.

By July, 2007, the first stage of the “to-be” business process analysis and design stage was completed (MOF-Vietnam, 2007). The implementers/contractors started the configuration and/or customisation of the application in the first phase and this continued till 2009.

Piloting
It was planned that piloting will be undertaken in two provinces and at the centre. The two provinces were Haiphong and Hanam. In April, 2009, the pilot of TABMIS was started in Hai Phong province. On the very first day problems were faced with data conversion and migration to new system. From the user’s point of view, what they had learnt during the training and what they saw in the pilot run was different. The implementation team had to provide supplementary instructions to improve the understanding of the users. In May, 2009 TABMIS was started in Ha Nam province (MOF-Vietnam, 2009).

Initially the reporting from TABMIS was not satisfactory and required significant re-working. In all the treasury offices of pilot sites, KTKB (the legacy system) was also run in parallel as required in the Project Management Plan. It was planned that there will be two months of parallel run at the pilot sites and depending on the treasury of each province, other regional offices can keep running KTKB until they gained confidence in the new system. This resulted in four-fold increase in work- first to make entry into both the systems and then to reconcile the two at the end of each day. The parallel run was reduced ultimately for 2 weeks for the last batches.

Slowly and with the persistence of the team, the pilots started showing positive results and finally succeeded. Although it was a turnkey contract in which the primary responsibility rested with the contractor, the involvement and perseverance of the MOF team provided the required inputs. These inputs included among others, understanding of business rules, interpretation of treasury business vocabulary and other procedural aspects.

After success of the pilots, the roll out plan was divided and executed in many phases. Roughly it was executed as given below:

- 2009 - rolled out in two batches of 3 provinces each (6) – MOF and State treasury(2+8)
- 2010 - roll out to 6 batches to 27 provinces cities
- In 2011 - rolled out in three batches to 11 provinces or cities, including Hanoi (capital, 2nd biggest and complicated provinces)
- In four batches to the 17 remaining provinces and separately for the remaining Central ministries in 2010, in 2012 completed roll out to all ministries and 3 major departments of capital city

Learning from the Pilots
There were initial problems in the first two roll outs (2009). In the pilot roll out the problem was that the users were not familiar with the new approach in terms of interface/screen and the way of working in the COTS system. Roll out teams were not proficient in this especially
as they were implementing a large system for the very first time. Briefly, the following situations were experienced:

- Unlike the legacy system, in TABMIS there were many modules and this confused the users initially. There was an Accounts Payable (AP) module, a General Ledger (GL) module etc. and which transaction needed to be entered in which particular module confused the users. This was in contrast to the legacy system where there was only one way of entering data. In TABMIS, the same invoice could be entered in different modules but reports did not show whether it had been entered or not.

- There were problems in the use of the centralized and COTS application. When staff entered the transaction in the system, it could not be modified. If modified, it reverted back to the last step/status. A majority of problems were related to old habits and practices of the users who did not easily adapt to this. It was after all migration from small to a big application. It therefore took some time for users to understand and become familiar with the new practices.

- Coordination between MOF team and the implementers/contractors’ teams was a problem in initial stages. There was a need to have good coordination between various teams and this took a little time to establish required coordination.

- During the whole process of roll out sub contractors faced difficulties in staff deployment. The key staff could not be allocated to the locations where the requirement was more pressing. The level of expertise of the staff deployed was sometime not up to the expected level.

- There were reporting problems which were the cause of many initial complaints. When new applications were introduced the difference in the method of operation had to be explained e.g. sequencing of posting and printing report could be different (in the old system -user could print at will but in the new system, they could do so only after end of the day when all the transactions are posted in the system). This system requirement was to ensure accurate data (in the legacy system which was decentralized, posting was made after approval by the chief accountant and the reports could be run anytime). This change in the practice was not very simple and follow up workshops were needed to clarify these issues. It is possible that if it was explained earlier and the change managed, the staff would have found it more acceptable.

As mentioned in the previous section, the roll-out was gradually done. Originally it was expected that roll-out would be faster, with about 10 provinces expected to be rolled out every month. However, that appeared very difficult and on an average about 3 provinces only could be rolled out every month. By October, 2012, TABMIS had been rolled out in all the 63 provinces with 697 district treasury offices and to the finance offices of these agencies and 37 central ministries, 3 departmental agencies of Hanoi city. This is indeed an astounding achievement for the MOF.

Currently TABMIS has more than 10,000 named users and the peak of concurrent users reached at 8,600 at the end period of December of 2012.

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3 The phrase used to describe a type of software licensing agreement that allows you to be the only user of the software. The user name is specified when the software is purchased or registered, and while you can install the software on multiple systems, only the named user can access the software on one system at any given time.
Features of TABMIS
The work in TABMIS starts after the budget allocation is entered into the BA (Budget Allocation) module for spending unit. As mentioned earlier, the system is spread over all the ministries, provinces and districts of the country. Thus, data entry into BA module involves large amounts of data entry relating to budget allocation for all the budget entities (approximately 200,000) throughout Vietnam.

An important feature of TABMIS is commitment recording. Commitments should be recorded in the system as they first become known, not when the first payment becomes due. The rule in Vietnam now is that the SUs are required to record the commitment in TABMIS within five days of signing the contract. Since SUs are fully competent to enter into contracts, there is no need to obtain prior approval before commitment.

Experience of testing
As part of testing strategy there were many types of tests which were conducted. There was Unit-testing, System Integration (SI) testing, User Acceptance Testing (UAT) and Parallel Testing. MOF was involved in SI-testing (in this MOF team only observed how IBM did it), UAT was done by the TIU teams, and the parallel testing was executed by each treasury office when TABMIS was rolled out.

Testing was time consuming and it used to take time to narrow down the causes of the errors – whether it was a system error, user error or configuration problem. Some errors occurred only during certain times and not at other times, making this time consuming process.

User Acceptance Testing
UAT was a clearly defined stage and was completed in Mar, 2009. If the requirements of UAT are not defined clearly, it can create problems later. The view of the testing team is that it cannot be assumed and that the exact requirements will be decided later. UAT should be

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4 This is a software license that is based on the number of simultaneous users accessing the program. With this type of license, User ID's are free and everyone who might ever use the system can have their own. What one is paying for is the number of people who can access the system at the same time.
based on real-requirements and staff should be given adequate time to do the testing. It is a process that cannot be hurried and it is advisable to spend time doing it well.


Lesson –Applications such as TABMIS take a long time to develop since each country situation and requirements are unique. These circumstances cannot be altered easily therefore country practices, culture and capacities have to be carefully considered when implementing these projects. Adequate time for testing and involvement of all users is necessary and for these reasons it cannot be rushed. However carefully the applications might be designed, the roll-out will reveal many challenges. These challenges need to be understood clearly and met.

The rolling out schedule also needs to be realistic and should match the capabilities and capacities of the teams. Vietnam scaled down requirement from 10 provinces to 3 based on this and it proved workable for them and did not overload the teams. Seasonal pressure of work in treasuries should be avoided for pilot or roll-out phases. For example, in Vietnam, the Government did not consider November, December, January or February as good months since they were either end of the financial year or beginning of the new financial year. During this time treasuries have more than normal work and the introduction of a new system will unnecessarily stretch their capacities.

TABMIS support

During implementation
During the implementation – from pilot stage till end of September 2013, helpdesk/support was an obligation of IBM. IBM used its tool to register all incidents raised by end users and MOF teams, and assigned appropriate person to study and resolve.

During the implementation supporting the application posed many challenges for the MOF team. The team did not have adequate tools to support and communication was by email only. The other problem was that support team was not very well qualified and the distribution of skill sets was not even, e.g. there were some good people with experience of one module (e.g. BA) and not adequate experience in another module (e.g. AP). Thus giving comprehensive single window support was difficult.

Post Implementation
A helpdesk facility has been created to support the application now which is providing countrywide support for TABMIS. Helpdesk can be contacted by email or through telephone. On an average about 25 complaints are received every day. However, it is felt that the team in the help desk is not very well trained in soft skills and requires improvements

The severity of the problems has been categorized as Level-1, Level-2, etc. Level-1 indicates that the problem has to be resolved within 24 hours and by sub-contractors. Level-2 has to be referred to the consultants (IBM, Oracle or Business Process team) and may take time to be resolved.

Key users in each province also provide support to other users and this was very helpful in making the project a success
Lesson – In such a large project there are new lessons to be learnt by all the team members at every stage. Supporting each other, while learning to provide support was the path followed by Vietnam in the earlier stages. As a result support stabilized and now Vietnam has a regular helpdesk facility to manage support. Meanwhile it is important to ensure a continuous buildup of the support function especially in preparation of the stage when the consultants have left after the contract is complete.

Leadership support

To work on such a big reform project, leadership support is necessary at every stage, not only pressure to execute the project faster but also political support to resolve the challenges and problems faced during implementation. In the words of one of MOF senior officials, “in the first place, with the leadership support, we should set up dedicated core team. In the building of the core team belief has to be there in the success of the system. With the belief and dedication, team could attract other people. The core team plays a very important role.”

During implementation of TABMIS in the proceedings of each annual review, it was very clear from the leadership that nobody in the ministry should obstruct it. “If you are not on it, you are thrown out”. Without very strong leadership commitment, implementation of TABMIS would have been very difficult. If the leadership was a little bit weak or reluctant, it would have become very difficult to implement TABMIS.

It took two years to work on the business processes. The team had to make clear and reasoned presentations to get political support. Because new BP made many changes to the legacy processes. In the initial stages there were a number of difficulties. There were times when team and the users felt overwhelmed and there were times when the system crashed. There were two aspects where the leadership support proved very important – leadership support was available, acting as champion with the trust and faith in the system. This effect was multiplied because the leadership was very patient, dedicated and determined throughout the project cycle.

In addition to the strong commitment of the leadership, leaders also set examples for other people to see. If the junior staff could not solve the problem. The senior leaders got involved in the work and helped solve problems. To freeze the BP, one of the key leaders, the DG of State Treasury had to sit with different teams and spent two months to finalize the BP. The Vice Minister discussed with the different teams from various departments, if they could not resolve the problems themselves. This high leadership involvement was reflected when several leaders had to stay up late in the night to complete important activities related to TABMIS.

Lesson – In a project which is going to take years to implement, it is inevitable that there will be change in leadership and the commitment levels of different leaders will vary. In Vietnam, although the commitment of political leaders as well the leadership within the MOF varied, they ensured support to the project through the entirety of its implementation phase. As mentioned above, there were times when the project went through rough times. It is clear that the support from the leaders was available whether it was for retaining a capable team, resolving BP issues or in tackling inter-organization issues. The project took almost 10 years to complete, and it must have been a serious challenge to retain a reasonable level of commitment from political leadership for this
duration. This can be termed as an outstanding feature of IFMIS project anywhere in the world.

Motivating the team

The income of civil servants in public sector is much lower than in the private sector in Vietnam, therefore motivating them was a difficult challenge from that perspective. MOF had to provide some spiritual and other non-monetary encouragements to the staff e.g. to encouraged them to make contribution to the country and to take it as a challenge. There were many very depressing moments for the staff and there were several complaints from the users. The management organized a retreat for the staff with their family members, so that they (team members as well their families) can enunciate all the problems and jointly try to find solutions to solve the problem of stress. It was also used as an opportunity to share the overall picture of the project and thus called for extra patience and effort. The retreat had many motivating activities and the result was very helpful in re-energizing the team members.

Because the team had adequate political support, MOF could provide the best support to the staff. TIU believes that for civil servants, recognition is more important than the monetary rewards. The core team was recognized by the leaders so the incentives and motivations were there for others to see. Leadership at every level not only encouraged the team to do the tasks but also rewarded them suitably, thus giving a positive feedback.

**Lesson – Motivating civil servants is indeed a challenge, especially when it is not accompanied by civil service reform. The Vietnamese approach provides a good lesson in motivation.**

Staff Turnovers

Normal promotion, transfers, attrition was also a problem in the team. In some cases, although promoted, the people were kept involved the project. A senior official of the Ministry, after he was promoted as Deputy Director General continued to look after the responsibilities of the project. In one case, an official was promoted to minister level and that turned into an advantage for the project since it provided the project support at an even higher levels of Government.

One senior official who had initiated the project, was promoted as Dy PM, he is still keeping an eye on the project and supporting it. Some key persons also left the job and gone elsewhere.

**Lesson – Staff turnover is inevitable and there is not much which can be done to retain talent over the long term. The project has to be managed in such a way that indispensability is not created and adequate training is provided to all to ensure that redundancies are created in the critical areas.**

Donor support

In view of the project manager, it is clear that MOF did not assume that the donors were the repository of all knowledge. This resulted in heated but very useful exchanges with donors and sometimes it was difficult to harmonize the government rules and donors’ rules.
All the senior officials of the MOF, however, agree that the internal as well as external support was excellent and donors were constantly supporting the MOF. After 10 yrs., in the words of the project manager, “I appreciate help and support of the WB e.g. when we proposed, then government and WB sat together and resolved the issues. Many times it involved the representatives of WB talking to contractor also to push”.

Lesson – Donor support is crucial in such a project. This support is not necessarily in terms of the financing but also on almost all the other dimensions of the project – project management, technical knowhow, experience from elsewhere in the world and finally sometimes to resolve critical issues between consultants and the government or even the internal issues within the government. It seems MOF is extremely satisfied with the donors and so are the donors because the project has been successfully completed.

Disaster Recovery Centre (DRC)

Since this application has become very critical for operations at each level of the government, it was necessary to think of Disaster Recovery Centre in the bidding document. In fact, in 2010 there was an incident in which due to some problem, there was a possibility of losing a significant amount of data. The system malfunctioned and the previous days’ balances were taken in the printed form for operations on next working day. Despite there being a national holiday, the contractors staff and TIU team worked round the clock and the system was up and running on the next working day. Ultimately, there was only a small loss of data.

TABMIS contract required a DRC similar to production environment. IBM set it up in early 2008 at the MOF building (28 Tran Hung Dao) which served as a DRC. Later at VST building the production environment was set up to function as DRC. The data synchronisation has been configured in such a way that every thirty minute the data in synchronised.

The usefulness and readiness of DRC has been tested a couple of times by unplugging the normal data base and switching to the DRC. The tests have been successful. This ensures that the protocols and mechanisms for recovery from a potential disaster are in place.

Lesson –It is necessary to think of disaster management to ensure the availability of the system and to test it periodically. It is necessary to keep all the database in sync so that no data is lost if such situation arises that operations need to be shifted to DRC.

Additional costs in the project

As stated in the beginning of this report, the costs incurred in the project are not only what has been estimated in the beginning of the project. Some additional expenditure was also incurred on a number of items, a partial list of those items in Vietnam is given below:

- Communication infrastructure at the district level
- Supplementary equipment/Personal Computers –the equipment provided for in contract was not adequate
- Staff labor component
- Staff time spent on the training
- The logistics that were not in the contract-transportation, per diem, housing them etc.
• Additional training on IT as well as on the TABMIS
• Effort and time spent on Business process improvements by staff

Lesson – There would be extra costs which the Government will have to incur through its own resources in order to fill the gaps. These gaps will arise at different stages of the project.

Business process improvement

Processes in every country are uniquely designed to suit their requirements. It is not possible to impose either the business process of one country on another or to adopt the so called “best practices” in the COTS, as they are. There is a requirement of adopting and adapting the processes suitable to the local needs of the country and this was the approach taken in Vietnam.

The business process team was not set up earlier and there was a lack of clarity in the scope. For example, in view of TIU:

After one year of the start of implementation, MOF was still discussing whether FA (Fixed Assets) module should be in the system or not. To decide on this part in the scope, the users were consulted. After two years, it was decided that the Inventory module, FA module should be implemented in the SUs and not in TABMIS. With lot of discussion with the contractors and MOF teams, it became clear that if it was to be included in TABMIS, then according to TIU estimates, with their limited resources, it would have taken many years (80 years) to complete the project.

So functioning of which agency should be included and what (process/function) is to be excluded and to what extent the processes of State Treasury should be covered has to be identified early.

The objectives of the reform need to be set clearly and early. The current stage of reforms must be clearly understood - where we are, where we need to reach and where we want to go. An important question was, “are we doing IT reform or business reform?” It took some time to make all the stakeholders appreciate that “we spearheaded business reform and not merely an IT reform”.

At the stage of bidding document preparation, initially objectives of the business process improvements were not set clearly. Later, after signing of the contract, at implementation of the contract, teams having business process experience were constituted. It is necessary to set up BP team before bidding processes. Members of the BP teams should have adequate reputation and voice to talk authoritatively about the BPs.

One of the challenges was that several times the functional departments did not agree with the outcome of BPI. Convincing them was time consuming thus it took a long time to decide on the business process. For the BPI to succeed, it was necessary to have detailed breakdown of the workflow structure and as far as possible, ensure that no surprises appear in the new scenario. Lack of clarity by the team from the beginning would have resulted in the contractor considering any subsequent requirement as a new requirement that would have financial consequences. Once the team had an agreement on the new BP, the work on executing that new process with the contractor started in TABMIS.
In the view of the TIU, contractors want to maximize the profit and, to that end, insist that what they had proposed was the best practice. TIU had to be firm with their requirements since they knew the in-country situation and requirements better. The contractor normally insisted that what MOF required was customized requirement, only unique to Vietnam -- sometime even for a very basic requirements. It was found that it was beneficial to do a breakdown of different processes before considering improvements. “TO BE” processes were designed on the basis of this, and during design phase the TIU had to continuously consult departments. During the process, another aspect was that the structure of accounts was to be determined to finalize whether there should be one set of books or multiple set of books. This would have impact on the way the accounts would be compiled and reported in future through TABMIS. Ultimately, Vietnam opted for one set of books for each province. This decision was based on assumption only and the major input was from the contractor only.

**Lesson – Business Process improvement is necessary because the true value of an FMIS system is realised only when the BP is improved/modernized. Experience shows that there is less understanding about the sequencing of the BP in the Government and that there are limits in governments within which the business process could be improved within a reasonable time. It is clear, however, that if BP changes are not discussed and made before the IT contract is finalized, there will be wastage of money and time. While the contractor might be waiting to configure the system, the government might be undertaking business process improvement separately. The process improvement could be as a result of changes in the laws or changes in the procedures for budgeting, expenditure, virements etc. But this change must be clearly understood before initiating the project, and it must be determined what could be changed and what would be changed and what cannot be changed. Countries may even consider doing a formal Business Process analysis by hiring external consultants in preparation of the IFMIS project to gain maximum advantages that such a change in business process can bring about.**

**Managing Contractors**

In Vietnam, the initial consultant who had done the overall design left after the design stage was complete. They were not involved in the supervision of the implementation. Another consultant was appointed to do the IV&V work thus to see whether the design was correct. This new consultant misread the terms of reference and considered themselves as audit consultant and only critiqued the design without offering any solutions. This consultant was terminated soon after the procurement was completed. This left Government of Vietnam without any professional consultancy help during the actual project implementation and therefore Government relied more and more on the IBM, the turnkey contractor. This may be termed as inadequate.

It could therefore be argued that although the IV&V activities extended over a number of year, it did not have desired level of benefit. It was reflection on both the client as well as consultant as they were not able to realise the benefit which IV&V activity could provide. Since the consultant was not able to offer solutions, it appeared to be more a failure of the consultant.
The relationship with the main contractor for the first one or two years was confrontational. What initially appeared to the Ministry of Finance staff as arrogance (IBM, Singapore side), however, slowly, but steadily improved substantially as they started to understand each other’s point of view better. As an example, while the first variation order took eight months to finalize, the final one took only two months. In the opinion of MOF staff in Vietnam, the situation can be avoided if the time duration for completion of contract is at least 10 years and not 3-5 years, as was in the case of TABMIS contract. That increased pressure on both the parties. The best way to manage consultants is to listen to them and then to do an analysis based on local genius.

Earlier, while the TABMIS team undertook technical (software and ICT) training at the commencement of the contract, the prime contractor excluded the government team from involvement in detailed design, configuration and testing of Oracle Financials during a time when the TABMIS team would have learned much of the characteristics of the software. This lack of detailed involvement in these important stages of the implementation may have contributed to some decisions such as the complexity of the chart of accounts, reporting and the general architecture of the software design etc. One of the ongoing consequences has been the need of MoF to engage and rely on a consulting firm to supply post-implementation software support for a period while the MoF team gains the practical experience with the software. This is one aspect where presence of an IV&V consultant could have helped.

However, finally TIU is very happy with the contractors as they are nearing completion of the project.

**Lesson – Managing contractors requires tact and skill. Relationship with contractors has to be maintained in the most amicable and pleasant manner to increase the gains for both since if the project succeeds it is win-win for both.**

**Change Management and Communication (CMC)**

The requirement of proper management of such a large change was recognised in the project very early and was assigned to the turnkey contractor. IBM divided CMC it into the following tasks.

1. Stake holder analysis
2. Organizational readiness assessment
3. Organization conceptual design
4. Communication strategy and plan
5. Training

Several communication activities were conducted such as training for TABMIS communication officer network in 64 provinces and cities starting as early as in 2007. The first on-site TABMIS communication campaign was organised to raise TABMIS awareness of other stakeholders also in 2007 (MOF-Vietnam, 2007).

**Change communication**

Stakeholder analysis proved to be very useful and provided a lot of insight into the perception of the project in the minds of different stakeholders.
For communication of different aspects, several channels were used, for example:

- Roadshows
- Website for TABMIS
- Monthly bulletin about TABMIS
- Communication Officer network in all the provinces

Although all the activities were completed there is a regret in the minds of TIU that they did not learn adequately from the benefit realization plan. Possibly, if they had started the process earlier it would have been better and allowed greater learning. This could have improved TABMIS awareness in user community.

Training

The importance of training cannot be over emphasized. The implementation team found that it was difficult to break it down to specific groups and persons. In the initial plans there was breakdown of job based training. That meant training Accountants, Chief Accountants etc. The training was later changed into role based training. Further, based on the experience gained from running some of the training programs, there were alterations made in the training scheduling and location as well as for post-training practices such as intensive data entry.

According to the Project Management Plan (PMP), training for end users was to be done in centralized manner - in three centres located in Hanoi, Ho Chi Minh city and Danang (covering North, Centre, South of the country). Training for key users was centralized in Hanoi (each province had 2 key users of financial agency of the province and 3 key users from Treasury). Hanoi and HCM city had key users at their district level as these cities are big and have complexity in term of operations.

End users of pilot sites (Haiphong, Hanam, Centre VST and MOF) were trained in Hanoi. Key users for all the roll-out provinces were trained at Hanoi.

End users for the Roll Out (RO) provinces were trained at centralized room located at province level (at the building of Financial Agency of province and at the building of the Treasury of province). Training for end users was planned to be closest to implementation date of that province. The training room was also used as the centralized data entry room.

End users from all the districts of that province and the provincial agency came there for training, then later, they were asked to do data entry in the TABMIS system from the date of implementation. Since the day to day operations of provinces were also to be managed, the data entry in TABMIS was done in batches.

This was called centralised data entry room because users were asked to do data entry intensively for about 2-3 weeks. During 2-3 weeks at the centralized data entry room, users made use of their own notes from the earlier training course. They were also helped by TIU staff – RO team and experienced users from others provinces (who were familiar with the functions of TABMIS). This helped them in the practices of TABMIS data entry. These users then went back to their offices in the districts and continued using TABMIS. This was done because it was not possible to set up data entry facility in each district as the resources with TIU were not enough to do it.
Benefits of change in training strategy were:

- Since MOF and IBM/FPT resources were limited, it was difficult to conduct training for users of 10 provinces, as required in the PMP, in a centralised manner. However, with decentralisation, more manageable training could be conducted at 3 centres with three to five training rooms, training twenty end users per class.
- End users became more familiar with the context/environment of TABMIS in the training and data entry.
- Since the users had to come to province city from the districts, that also for ten days only, it did not affect them much in comparison to their travelling to bigger cities like Hanoi, HCM city etc.
- The trainees could concentrate more on learning the use of TABMIS, and waste less time in discovering the new city.
- Finally to help keep the cost of accommodation, travel etc. down which was to be borne by MOF.

Lesson – TABMIS was a large project spread across many agencies and provinces. It brought about major changes in the operation of the payment system in Vietnam. Thus preparation for the change was also necessarily large. Fortunately, in Vietnam Change management was also undertaken by the same consultant who was developing the software. This seems to have helped in organizing and undertaking the tasks involved in change management. As the software development moved so has the change management. The role of leadership during change was also important and has remained helpful. There were many activities required in disseminating and socializing the change.

Finally, training was equally necessary.

The change of location of training and centralizing (for key users) it and following it up with the centralized data entry was also helpful at the time of pilots. In initial stages the training activity needed to be very intensive and targeted and as the system was also evolving during pilot stages, the effectiveness of training was increased by centralizing it. Later, as training spread and staff became more familiar with the system it became more effective to change the training delivery mechanism in a more decentralize manner and this helped in rolling out the training. This can be adopted in other projects also, at least at the initial stages, as seen in the advantages listed above.

Project Management

The importance of proper project management cannot be overemphasised, especially in the IFMIS it assumes significant importance (Diamond & Khemani, 2005; Hashim & Allan, 1999; Khan & Pessoa, 2010). In Vietnam government, it was felt that enough experience existed to manage this project within MOF (Worldbank, 2003b) and hence a Director level officer with IT and other experts was made in-charge of the Project Management Unit (PMU) for PFMRP.

The project size was very large, it appeared difficult to management the entire life cycle within the PMU itself. Therefore, a separate TABMIS Implementation Unit (TIU) was
created. The daily and technical work was assigned to TIU, the general administration of the contract was handled by PMU. This improved project management. The following working groups were created to manage the project:

1. Business Process Team
2. Technical team
3. Testing Team
4. Training and Change Management Team
5. Implementation and roll out Team
6. Conversion and migration Team
7. Control Environment Team

In order to equip the TIU teams with the project management methodologies, training was given to the officials. However, when it came to actual working on the project management of TABMIS, IBM brought to bear its own PM Methodology. It took some time for the TIU teams to learn and appreciate the IBM methodology and its benefits. Ultimately, it worked well with the TIU teams.

For maintaining a good coordination between these teams and to manage the project, weekly meetings were held within the PMO and monthly meetings were held at the steering committee level (PMC).

The Vietnam case, along with that of Russia, is cited as an example of how continuing government ownership from the highest levels, through very difficult phases of the project, over a very long time period was critical to success of the project. The following structure of project management was particularly useful in TABMIS:

- Project Manager – A senior official from functional side (not IT) with stature in the bureaucracy, adequate financial and administrative powers.
- Core Team – This was a group of trained professionals from core functions, who can act as change agents.
- Project Secretariat – Staff with experience in the installation of large scale IT systems and procurement.

Lesson – Project Management capacities are necessary in the Government. While it is possible that these capacities are available, however, IT projects are complex and require a slightly different skill set to manage them. Fortunately, the capabilities were available in Vietnam and needed only some enhancements. In case the capacities are not available in the country, it may be a good idea to hire external PM consultants.

Customisation of the COTS

It is normally suggested that whenever COTS solution are chosen, it should be ensured that the least possible customisation is done. On the one hand customisation is expensive and on the other hand it binds the country to that particular version of COTS. In IT industry it is a common practice to bring improvements in the existing versions of application software, and companies continue to support the earlier versions for a few years and then discontinue the support.
In case of Vietnam, TABMIS has been developed on version 11 of the Oracle suite of EBS. The Oracle support to it may continue till 2014. If Vietnam wishes to continue with version 11 thereafter, then Oracle support would be non-existent after that time. If they chose to migrate to version 12, the customised part may not work as expected and may even require redoing.

As mentioned in the first chapter, often customisation is misunderstood. True customisation is only when some fundamental aspect of COTS is altered to suit the requirements. Altering configuration or meeting specific reporting requirements is not customisation in true sense. TABMIS design was based on separate books of account for each province. A locking mechanism in Oracle forced only one book of accounts to be used for updating transactions, while all other books were locked causing long delays. This feature was altered for TABMIS by altering the granularity of locking protocol in EBS version 11. This can be termed as true customisation and may not be available in the later versions, in case Oracle does not revise it in that version(s) also.

This situation is not unique to Vietnam, and is the flip side of choosing COTS. Changing large enterprise level applications in public sector is a very complex and tedious process. These aspect also need to be considered while choosing COTS.

Lesson – How much to customise will always remain a critical question, especially in public sector projects. COTS allows customisation which is expensive but at the same time it binds the buyer to that particular version of COTS. Countries have to find a comfortable point between no customisation and maximum customisation. The more it moves towards customisation, the greater amount of future resources will be needed to maintain that system. Since IFMIS systems would be there for 10-15 years, or more, this is an important consideration. This adds weight to the argument to considering BP more aligned with the COTS solution so that switch over costs could be minimised.

Budget Preparation solution

It was decided early in the project that budget preparation will not be included in TABMIS. ICT-enabled budget preparation systems will follow in the later years of the project (Worldbank, 2003b, p. 10). Towards the end of the PFMRP implementation period, software that supports the development of budget planning, both for the current budget cycle and for forward years, will be procured. Budget preparation software packages are typically standalone from treasury and budget management systems, but interface with them. With such a system, it will be possible to upload completed budget plans into TABMIS for execution; and to download budget outturn data from TABMIS back to the budget planning system to form a baseline for future budget development and analysis. This sub-component has been programmed towards the end of PFMRP implementation period, because at least three years will be required to clarify the approach to medium-term expenditure planning in Vietnam and to build capacity to manage such an approach. To ensure the budget development software is a good fit to TABMIS, it will not be selected and implemented until TABMIS implementation is well advanced (Worldbank, 2003b, p. 11).

Lesson – The experience of many countries, especially in this region, indicates that implementing a budget planning and preparation solution is not easy. It was a strategic decision for Vietnam not to implement it and other countries can also consider this
option and keep only the Budget execution part in their IFMIS initially. Later, once the system matures and more experience is gained, the budget preparation module of a grand GFMIS can be considered.

Volume of Data to be handled by servers

Estimation of the volume of data and the volume of transactions which will be required to be handled once TABMIS is fully rolled out proved inadequate. TABMIS servers started to choke, well before full roll-out was complete, and it took some time to identify the problem. When the performance degradation happens, many possible reasons could be there. In fact often it is difficult to isolate the true reason.

The length and complexity of the COA was also reported to be the cause of performance degradation. Now all the transactions are posted in the General Ledger and not in the sub-ledgers (AR, AP, PO etc.). The Tax Collection System (TCS) has been as a centralised system and it is interfaced with TABMIS General Ledger. So the tax data is directly posted into GL of TABMIS. Accounts Receivable module is used to post the other transactions which are not captured by TCS. At present the users can make any manual posting during the day time in TABMIS. Scheduled postings are only made after office hours.

Once it was clear to MOF that the problem was volume of data and the servers appeared inadequate to support that volume of data, the problem was resolved by procuring new servers- some provided by the consultant (IBM) and others procured by the government.

Now when the full roll-out has been completed, those servers are proving to be very good and can serve TABMIS needs for few years in the future but may lead to problems should Vietnam pursue any further and potentially significant functional development of TABMIS into a comprehensive IFMIS-style solution and where transaction volumes and reporting demands on TABMS can significantly increase.

In some countries like Russia and Pakistan where a distributed architecture has been adopted, it has been reported that they have not faced these problems. The present architecture of TABMIS, it seems working satisfactorily.

Lesson – Experience shows that estimation of data volumes, including using existing estimation rules, normally tend to err on the low side. This creates bottlenecks later, especially when the servers start to choke. The lesson therefore is that the estimation of data volume be done liberally so that this situation can be avoided. Alternately, the country could create a contractual mechanism that the higher capacity servers will be bought or provided for at a pre-determined cost if the volume increases beyond ascertain threshold level.

Some time was spent when the decision was taken either by IBM or the government to procure the new servers. It is possible that if there was a regular full time project management consultant this issue would not have taken so long to resolve. In some cases the solution might lie in considering alternative architecture of the application early in the project cycle.
Start Chart of Accounts first

In the legacy system, the use of COA was very flexible. It was built into the information separately. The local agencies were able to make good use of this flexibility. Local users could create sub accounts in the old COA. While designing the new COA, MOF had to compromise on a lot of local requirements and this was not liked by the local users.

Main considerations which dictated the current design of chart of account in Vietnam were as follows:

1. Reporting requirement
2. Management requirement
3. Requirements for control

These requirements along with the ease of use and features of the system helped in the decision about the COA. So considering all the drivers, they had to limit the number of segments that can be kept. As a result, 11 segments are there in the COA with a total of 43 digits.

COA for budget and treasury are in unison. In addition to Economic and Organizational classification, it can also supports project level information so that all the reporting needs are satisfied by the new COA. There is also a reserved segment which can be used in future, if the need arises.

Lesson – Although it took a little time for Vietnam to finalize their COA, once finalized, it was acceptable to all the stakeholders. This is an essential step which cannot be eliminated and the modernization of the CoA needs to start as a first step.

Contractor’s perspective

Contractors felt that the duration of contract has stretched too long. Requirements were not synchronised and their finalisation had taken a very long time. Once finalised, the requirements were very different from what had been written in the contract. For example, finalisation of the Chart of Account (COA) took almost one and a half year. Consultants had to therefore reassign their manpower elsewhere as they were sitting idle till the COA and Business Processes were given final shape.

Finalisation of reports also took a long time. By the time the pilot was started only eight out of forty or so reports were finalised. Since there were diverse agencies – ministries, provinces, districts and communes, it was difficult to meet everyone’s reporting requirements.

Another complication arose because of the fact that the MOF was using a partially accrual system and the Ministries were using full accrual model of accounting for spending units.

In view of the contractors, TABMIS has more features of a core banking solution which was developed and deployed5.

Lesson – Although in such a project, the biggest risk is taken by the country but one needs to appreciate the contractor’s perspective and prepare well in advance to

5 core banking solution is the service of deposit and withdrawal of money provided by networked bank branches which allows access to its customers from any of the branches.
minimise contractors time, especially fruitless time, on-ground. The contractor’s time is not a free commodity from the countries’ perspective and if it is wasted it merely leads to wastage of time and adds to costs.

Use of local contractor

A local subcontractor (FPT) was also appointed by IBM.

Since the number of users to be trained was very large, it was impossible for MOF to train all the users without external support. For that purpose, the role of FPT was very important and useful. Since the deployment to provinces was done in a staggered manner, the MOF and FPT teams were working together on training and data-migration in order to deploy system at each location. They provided training and migration support. Up to 150 FPT staff were directly involved in deploying TABMIS at more than 1,500 agencies and organizations, and training nearly 10,000 users at the central level and in 63 provinces and cities across the country.

Lesson – Capacity of local vendors will always be useful and can be cheaply obtained, if available. In the process of implementation of TABMIS, FPT has been groomed to take over the role of being a national partner. Their support was key in implementing TABMIS in the entire country and as the project matures and main contractor leaves, the key aspect will be the burden maintenance which they will shoulder. Other countries can also think of such a model where local developer/partner is used to help in development, training and then roll-out, and later provide support in maintaining the application.

Improvement in Finalisation of Accounts

The time stipulated in the regulations for submission of final accounts in Vietnam is 18 months. There is a long period of five months which is provided in the law to make adjustments. Now with TABMIS it should be possible to complete this in a much shorter period. The discussion to cut down the time cycle of 18 months to 12 months is ongoing. Further, with the availability of the transaction level data to the audit, the scope of audit could also be comprehensive.

Lesson- Although complete roll-out of TABMIS has just completed, its impact on the schedule of annual statements presentation is visible in terms of reduction of preparation time and should be viewed as a positive outcome of such systems.

Closure of the project

The project PFMRP has been closed on 31 Oct 2013. It has achieved the target of implementing TABMIS in all the locations. In the words of a PMU official, “now when we look back, we cannot imagine we have achieve so much” and that “I have some regrets, it was possible that some things could have been done differently resulting in better outcomes. And now after years of working on this, the users have started to appreciate the benefits. The efforts have not remained worthless. I am also happy that you (the team) appreciate that this is a successful project. During implementation, the team never thought it will have such a success”.
The most important requirement for continuation of the project has now been met and the arrangements have been made to take over the application software from the main consultant and maintain TABMIS within the resources of the MOF and by hiring local consultants.

**Lesson – Collective hard work has paid off in completion of TABMIS.** The next step will be to maintain the system and provide support to all the stakeholders/users. Development of these capacities has been an important part of their journey. It is therefore important, early in the process to think of the migration path and develop suitable capabilities.

**Way forward**

TABMIS has been working for almost 10 months at all the locations now. And as envisaged in the original project document, now a government wide management information system (GFMIS) can be conceived. Recently, a study on prospects and feasibility of GFMIS has been conducted. As mentioned in the original project document, the budget planning and preparation can also be taken up after few years of successful operation of TABMIS.
Background

After a number of decades of following socialist system of government, in 1990s Mongolia chose a parliamentary form of government with a President who is the head of the state and a Prime Minister and the Cabinet, which forms the government. The role of the President is largely ceremonial although he is elected directly by the people and makes senior appointments like those of judges and ambassadors and can also block the Parliament’s decisions, in which case, the Parliament can respond by over ruling him by a two-thirds majority vote.

The Parliament is called the Stage Great Khural (SGK). It has 76 members elected by a proportional representation system. The Prime Minister is chosen by the SGK and the cabinet is chosen by the Prime Minister.

There have been a number of successful elections since Mongolia became a democracy.

The country has a central government and there are 21 administrative provinces (called Aimags). The Aimags are further divided into more than 330 Soums.

Over the past 20 years, Mongolia has transformed itself from a socialist country to a vibrant multiparty democracy with a booming economy. Mongolia is at the threshold of a major transformation driven by the exploitation of its vast mineral resources and the share of mining in GDP today stands at 20 percent, twice the ratio of a decade ago. The economy grew by 12.4 percent in 2012, compared to 6.4 percent GDP growth in 2010. GDP is expected to grow at a double digit rate over the period from 2013 to 2017.

The budget is divided into State and Local budgets. Recently some revenues have been assigned to the provinces to allow them to exercise a certain level of autonomy for investment from these allocated resources. The execution of various activities in the budget is done by Ministries and the provinces. At the execution level there are units called Budget Entities (BEs). Their number is about 5,000.

To ensure sustainable and inclusive growth, Mongolia will need to strengthen institutional capacity to manage public revenues efficiently and limit the effects of Dutch Disease; allocate its resources effectively among spending, investing, and saving; reduce poverty; and offer equal opportunities to all its citizens in urban and rural areas. It needs to do this in a manner which protects the environment and intergenerational equity.

The treasury functions are performed through the Ministry of Finance. There is a central treasury in the MOF and each Aimag and Soum also has a treasury. These treasuries perform

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6 Dutch disease is the negative impact on an economy of anything that gives rise to a sharp inflow of foreign currency, such as the discovery of large oil reserves. The currency inflows lead to currency appreciation, making the country’s other products less price competitive on the export market. It also leads to higher levels of cheap imports and can lead to deindustrialisation as industries apart from resource exploitation are moved to cheaper locations. The origin of the phrase is the Dutch economic crisis of the 1960s following the discovery of North Sea natural gas. (http://lexicon.ft.com/term?term=dutch-disease)
the payment function through the GFMIS. However, the current setup has taken a long time to establish in Mongolia. The country also successfully established a Treasury Single Account (TSA) which has helped in better management of its cash position.

In the following paragraphs we will examine the important issues which came up in the transition from a very weak system to the present system particularly in relation to GFMIS implementation and draw some inferences which could be useful to other countries.

Crisis of late nineties

Economic activity in Mongolia has traditionally been based on agriculture and livestock. Mongolia also has extensive mineral deposits: copper, coal, molybdenum, tin, tungsten, and gold. This account for a large part of its industrial production. Mongolia was part of the socialist countries and Soviet assistance, at its height it was almost one-third of its Gross Domestic Product (GDP). This assistance stopped in 1990–91, after the collapse of the Soviet Union. Consequently Mongolia was driven into deep recession, which was prolonged by the reluctance to undertake serious economic reforms by the then government. The situation continued till mid-1990s and the new government which came to power in 1996 embraced free-market economics, easing price controls, liberalizing domestic and international trade, attempted to restructure the banking system and the energy sector. Major domestic privatization programs were also undertaken leading to positive outcomes.


Reforms

The PFM in Mongolia was characterised by lack of timely and reliable information, weak internal controls, and misappropriation of funds. As a result, the fiscal discipline, resource allocation and service delivery efficiencies were suffering (Worldbank, 2008). Since the mid-1990s Mongolia had been bringing about wide ranging public sector reforms. Particularly in the area of Public Financial Management - through establishment of a medium-term budget framework to link policy priorities with budget resources, improving budget comprehensiveness, rationalizing the system of norms and procedures, introducing a Treasury Single Account (TSA), and improving the reporting system in a framework consistent with the International Public Sector Accounting Standard and IMF Government Financial Statistics. The government intended to align fiscal and tax policies to achieve macroeconomic stabilization, financial sustainability, improved fiscal balance, improved access to social services, and increased pro-poor orientation of public spending.

The limitations in the budgetary and treasury control systems stemmed from the organisational arrangements and the processes. The responsibility of maintaining accounting systems and reporting financial results was distributed to budget entities. These entities had their own bank accounts at commercial banks (a total of approximately 2,000 bank accounts).
Budget entities were responsible for their own budget control, financial management, accounting, and reporting under the authority of the budget act and instructions issued by MOF. The accounting systems of budget entities were diverse, and they did not use a uniform chart of accounts and many of the systems were maintained manually (Worldbank, 2002). This rendered cash management, reporting and controlling of the budgetary outlays difficult leading to a very weak Public Expenditure Management framework. Since Mongolia was a country which was part of the centralised system, there were many other reforms which were required before IFMIS could be established.

PFM Reform Projects

The World Bank in consultation with ADB and IMF designed their first PFM project in Mongolia in 1997 under Fiscal Technical Assistance Program to assist the Government in improving revenue, treasury and debt management. Other donors also helped in a number of other areas relating to governance and upgrading of public administration. In 2003, World Bank and Government prepared a project called Economic Capacity Building Technical Assistance (ECTAC) Project. Later in 2006, another project called Governance Assistance Project (GAP) was started with the assistance of World Bank which helped in the completion of installation and roll out of the GFMIS.

To address the shortcomings in the public sector management, Government proposed a Public Sector Financial Management Law in 1997 as a major instrument for reasserting budgetary discipline. The law would have established the initial requirements of an efficient PFM system but could not be passed for another five years. The new version of law, which
was finally passed in 2002, focussed on improving financial management practices in the country, however, the issue of intergovernmental finance was not treated as exhaustively as in the earlier version. An important recent improvement has been the passing of the new budget law in 2011. This new law has tried to improve upon previous law in a number of areas.

The new Budget Law redefines the budgeting principles, scope, composition, classification of the budget, clarifies expenditure and revenue assignments, improves authorities and responsibilities of the bodies that participate in the budgeting process, and improves regulations on budget transparency and accountability. It introduces new regulations in the areas of public investment budgeting, government debt management, program budgeting, public private partnership, formula based transfer allocation, and citizens’ participation in budgeting. The most important change introduced by the new Budget Law is a reform of the intergovernmental fiscal relations towards greater decentralization.

**Motivation for IFMIS**

To support the payment systems in treasury there existed an automated payment system called BUMIS. It suffered from a number of shortcomings and was only used at the central treasury. The system had no automated budget control and approvals were paper based while lacking checks or balances which should be in-built in such a system. It also had shortcomings in reporting and audit trails. This coupled with the lack of controls on the budget entities, did not allow effective control and led to a need to establish a Treasury Single Account and requirement of a GFMIS was consequently very strongly felt.

Now article 20 of the Budget Law, 2011 mandates that there will be an IFMIS covering budget preparation and execution and this responsibility has been assigned to MOF (article 12.1.1 of the Budget Law, 2011).

**Lesson –** The position of Mongolia was unique in that it had adopted many reforms yet the budget and accounting systems were not able to support an efficient PEM mechanism. The existing simple IT systems were not able to support the needs of a modern PFM system. The legislative support to PFM was also evolving. This provided the motivation for a change towards a GFMIS.

**Procurement and Contracting**

The implementation of different components of GFMIS benefitted from the three World Bank projects. The first project achieved its original objectives, despite the tremendous challenges and the odds facing the government, with a total cost of $5.3 million. The GFMIS implementation was completed with $5.2 million ($3.6M from Fiscal TA and $1.6M from ECTAC).

The total cost of the three projects (Fiscal TA, ECTAC and GAP) combined is around $27.2 million ($5.3M + $7.9M + $14M), and the total FMIS ICT costs is around $11.2 million ($4.1M + $5.3M + $1.8M) thus far (Dener et al., 2011, pp. 52-53). In the project, the cost of extending GFMIS to only 50 Soums was included, rest of the Soums were connected using Government of Mongolia budgetary resources (Worldbank, 2013a).
Table 4 - Expenditure on initial GFMIS

<table>
<thead>
<tr>
<th>Program</th>
<th>Total for the entire program</th>
<th>Initial Spent on IFMIS</th>
<th>Total spend on ICT/IFMIS (including the initial spend)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiscal TA</td>
<td>5.3</td>
<td>3.6</td>
<td>4.1</td>
</tr>
<tr>
<td>ECTAC</td>
<td>7.9</td>
<td>1.6</td>
<td>5.3</td>
</tr>
<tr>
<td>GAP</td>
<td>14.0</td>
<td></td>
<td>1.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>27.2</strong></td>
<td><strong>5.2</strong></td>
<td><strong>11.2</strong></td>
</tr>
</tbody>
</table>

The GFMIS component of the fiscal technical assistance project went through three procurement tender processes spanning a period of two years. This delay led to a substantial government apathy for the project. According to one World Bank report, the lack of familiarity with the procurement legislation, processes and the systems, seems to be the reason for delay in completing the procurement process on time (Worldbank, 2004a). In July 2000, there were parliamentary elections which resulted in victory of the opposition and led to a complete overhaul of MOF. During 2000, two bids for GFMIS failed - in June (there was only one bidder which was found to be nonresponsive) and in Nov (there were two bidders which were also found insufficiently responsive to the requirements) (Worldbank, 2006a). This disappointed everyone involved in the execution of the project.

The new government accelerated the project implementation with establishment of Fiscal TA Working Group. Previously the project was led by a Department Director. The Working Group was now under the leadership of the State Secretary, with staff from MOF, Bank of Mongolia (BOM), the State Audit Board, Ministry of Health, Ministry of Justice, the Ulaanbaatar City Council, and representatives of the Project Implementation Unit (PIU) and the Public Administration Reform Management Group (PARMG). The Task Forces on Budgeting, Treasury, Accounting, Debt and Aid Management, and Accounting Training were also re-staffed and started reporting to the Working Group. This provided the project a new vigour.

In 2001, there were further changes in the project – both in the World Bank and within the government – that contributed positively toward its eventual successful implementation. In March, the management of the project was returned to the Poverty Reduction and Economic Management Unit (EASPR) in Washington under a new Task Manager. In June, there was a revision in the institutional arrangements of the project within MOF at the request of Bank staff: with the aim to enhance the communications between the PIU staff and MOF and to ensure donor cooperation on the expectations and requirements of the project and the ministry’s needs. The Minister issued a decree to move the PIU into the Treasury Department. This restructuring was crucial in building an appropriate institutional framework and established the essential intra and inter-institutional linkages between the departments in MOF and other ministries and agencies for the project to proceed successfully. The PIU staff were made accountable to the Director of the Treasury Department (Worldbank, 2006a).

The IT capacity in the Ministry of Finance was very week therefore, it appeared difficult for MOF to prepare technical specifications and the bidding documents. The government realised this and an external consultant (KPMG) was appointed to complete the specification work.
KPMG consultants worked with staff of MOF and Treasury Department to prepare technical specifications and bidding documents with a view to successfully implement GFMIS. Based on the KPMG report, an agreement was reached between the bank and government on the procurement method, a procurement plan, and the phased installation of the GFMIS system beginning with central government entities, all provinces, and then districts. The government also agreed on the use of consultants and a timetable for their selection to assist in the bidding and evaluation. An accounting system to be used in the system was also agreed. The newly created Accounting Department was required to cooperate with the project to develop and implement new accounting legislation.

The project saw another delay due to problems with lack of a standardised COA in budget and treasury.

The first-stage of the third bidding round for the GFMIS was launched in September 2002 with 13 companies (of the 21 which bid) participating in the pre-bid meeting. The second bidding stage was conducted in early 2003 with bids closing on March 3, 2003. The bid evaluation report was accepted by IDA in April 2003. Contract negotiations were held and concluded on May 9, 2003 and contract signed with IBM/Freebalance from Canada and later in Jun, 2003 contract was signed with MCS Mongolia as network and hardware provider.

Lesson – Procurement in public domain can be a difficult proposition. In case of acquisition of a large IT system, understanding of the accounting, IT system and procurement procedures is very important. This knowledge cannot be acquired in short time span. In case of Mongolia, they were able to overcome these shortcomings but it took time and a few failed bids. Hiring of IV&V consultants which has been done elsewhere could possibly have helped here. Agreement on the COA also proved critical. The lesson is therefore that each stage of project should be thought through carefully and in detail. It is important to learn from peers and experts since without the required level of understanding, learning on the job has limitations and proves expensive.

Business process improvement

As in case of many former centralised countries, Mongolia needed many building blocks for PFM before an effective IFMIS could be established. In addition to legislative changes, one of the most important improvements in business process was introduction of the Treasury Single Account. IMF provided advice on the introduction of a treasury single-account to the Bank of Mongolia, the country's central bank, to strengthen public expenditure management. In the words of an IMF adviser at that time “in 2000, Mongolia's expenditure management system was suffering from lax financial discipline and a lack of timely and reliable data on different aspects of budget management. Government balances were scattered all over the banking system. Introducing a treasury single account was a key component of a concessional loan program approved by the IMF’s Executive Board in September 2001. But the small number of staff members in the accounting section of the Ministry of Finance and Economy and their need for training in up-to-date concepts of financial management required external assistance.” This view is seconded by many Mongolian officials who had worked in the MOF at that time.
It was a difficult challenge to eliminate a large number of bank accounts and establish a TSA. A small beginning was made with a pilot project, started in mid-2001, which involved ten ministries and agencies. This had limited functionality and it unfortunately failed to bring the benefits as anticipated. The budget managers mistrusted the new arrangement, fearing loss of independence in executing their spending decisions. Important elements of the treasury single account were yet to be developed and coordinated with key participants. These included

Scope and functionality of GFMIS

GFMIS is based on a central system at the central treasury in Ulaanbaatar. The following functionality is provided in the system:

- Budget allocation, changes in the budget are entered in the system
- At the centre, the Aimags and the Soums can directly connect to the system to carry out the processes related to budget execution.
- Commitments can be recorded in the system before the expenditure can be incurred
- All the revenues can be recorded in the system
- All the transactions are posted as they occur
- Allows cash management as the budget is controlled on the basis of monthly allotment
- Connected to the central bank to issue payment instructions electronically
- Since the COA for budgeting and budget execution are different, both upstream and downstream data conversion is required to relate to the budget
- Since the agencies follow accrual accounting, the system is used for payments and then the data is manually re-entered in the other systems to prepare monthly, quarterly or annual financial statements.

It is treasury centric system because the Budget entities are required to send their payment requests to the designated treasury office for effecting payments. The budget allotment and monthly limits under which expenditure can be incurred are recorded in the system.

The Budget Preparation and Information System (BPIS) has not been integrated or interfaced with the GFMIS. Therefore budget data continues to be converted into GFMIS COA and then uploaded in GFMIS.

The technical design of GFMIS is based on FreeBalance. The version being used in Mongolia is version 6 which is client/server based. All the ministries, 21 Aimags and more than 330 Soums are connected to the central server via optical fibre cable or VSAT connections. The number of users of the system is more than 500. The FMIS includes Accounts Payable, Accounts Receivable, General Ledger and Commitment Control.

The system is operational since 2005.
finalizing the conceptual design, setting up the regulatory framework for the treasury operations, and drawing up a detailed plan for the transition, including training activities.

After further experimenting, piloting and proving the concept in MOF, approval of the Cabinet was obtained. The Cabinet on May 24, 2002 adopted a resolution selecting the TSA concept based on centralized payment processing through treasury consisting of central office at the MOFE, local offices at Aimag, UB city and its districts, and treasury representatives in Soums mostly based on existing accounting cadre (Worldbank, 2002, p. 66). The GFMIS implementation also required re-engineering of a number of business processes to fit standard integrated accounting software requirements. Overall this was a time consuming and slow process and required a couple of months to complete.

In an effort to improve the appreciation level for FMIS in the MOF staff, they were exposed to similar systems elsewhere in the world. A team was sent to Kazakhstan, a country where they had implemented an FMIS. The team appreciated the efforts and benefits realised by them. In the opinion of the then project manager -on their return, as a result of presentations by that group in MOF, the project Steering committee speeded up the implementation process and took timely progressive decisions. While the visit helped them understand, how countries having similar systems and processes can modernise their treasuries, however, that was not the only reason. There were other compelling reasons to decide in favour of modernisation of their treasury such as better cash management, improved budget management and quality of fiscal reporting as well as accountability.

The Business Process changes in Mongolia were managed with support of advisers from the donors and therefore no other external agency or firms were hired to do the work.

**Lesson – Treasury Single Account is a key component for effective cash management and FMIS.** If a country does not have a TSA, establishing one requires considerable effort and commitment. In addition, if there is a fragmentation of financial management responsibilities among different units of the government spread across the country, it complicates the problem. It is always helpful to learn from other countries who are undertaking such changes. In case of Mongolia visiting Kazakhstan seems to have helped. Similarly, at present Mongolia is considering whether they should migrate to version 7.0 of the FreeBalance or not, and it may be advisable for them to visit some other countries who have undertaken such a switch. Two countries which have done this are Timor-Leste and Antigua & Barbuda and learn from their experience.

**Change Management and Communication**

The implementation of GFMIS was a major change along with changes in accounting methodology, new chart of accounts, single treasury account and a few other processes. This whole process demanded extensive dialogue, commitment, and ownership of the government from senior management to rank-and-file civil servants and all the ministries and agencies to ensure that the above steps were carried out and synchronized across all entities. This was a major endeavour.

As far as training for GFMIS is concerned, it involved training a large number of managers and users. Initial training proved inadequate for a large number of users so more training was provided. In the first few months they had many failures, problems and mistakes because the
system was installed throughout the country and distance network was created for the first time in Mongolia. Although people including team members were new to the system, but as result of strong commitment and support provided by the MOF management to implement the system, and the tremendous hard effort, this was successful. The business process improvements and the change management changes were entirely managed either internally or with the support of donors.

**Lesson – it is possible to manage the change with the advisor support from the donors.** However, the number of officials who were required to be given training in IT and in accounting was very large. The specific training related to GFMIS is very crucial and experience elsewhere has shown that one round of training is not enough. It needs to be followed subsequently with more training to reinforce understanding.

**Project Management**

The management of the project was done internally by the government with the support of donors. Initial delays occurred in the project and have been discussed earlier. In the later stages, however, a dedicated project manager recruited by the Government to assist with implementation of GFMIS played a very important role. Government’s ownership and sound project management came together to ensure the broader decisions were taken in a timely and effective manner. Prior to hiring the project manager, the Government was not aware of the technical and functional aspects of the system design that were being installed by the vendors. This information gap led to many an impasse and was mitigated by the arrival of the project manager, who worked for the Government, and independent of the vendor, and knew the specification and broad system design issues. The relationship between the Government and the vendor improved significantly due to the role of the project manager who acted as a bridge between the vendor and Government.

**Lesson – After initial problems leading to delay in implementation of the project there was substantial improvement in project management.** This was especially when the organisational changes were made and State Secretary took over the chair of steering committee and a number of other agencies were also included. The role of the project manager as a bridge between the vendor and Government was crucial to success.

**Customisation of the COTS**

In view of the users, there seems to be minimum customisation of the application software. In fact, in some of report, it is the lack of customisation which is a problem. There are a number of possible reports which could be extracted from the data captured by the application. Despite a reporting tool (Crystal Reports) provided, due to lack of knowledge about the application database, it is difficult for the staff in Treasury to prepare these reports themselves.

Mongolia follows accrual accounting for the budget entities and whole of the government reporting. However, the budget is cash based and so is the accounting at the central treasury level. GFMIS supports cash or at best modified accrual basis. There are two other software applications –ACOLOUS and PLASTIC which are used for compiling monthly reports, six monthly accrual statements and annual statements on accrual basis. As a result GFMIS is used only for payments. Once the payment is made, the payment data is obtained from
GFMIS in printed reports and using these reports, the data-entry is made into ACOLOUS and PLASTIC manually. This data-entry could be 10 entries to 200 entries in a day for a budget entity. A simple customised interface could have saved this labour without compromising accuracy. In the absence of this all the budget entities are forced to continue with this avoidable data entry work.

Lesson – Mongolia has now been using GFMIS for a number of years. The annual accounts are prepared on accrual basis and Mongolia is amongst a few countries who present whole of the government accounts in the region including the State Owned Enterprises (SOEs). In order to support the monthly compilation of reports and preparation of six-monthly reports, two software are being used. Data is manually entered in these systems after extracting relevant reports from GFMIS. This increases chances of errors as well as involves delay. It appears that with a little customisation or interfacing of these applications with GFMIS, it should be possible to exchange data electronically. This is indicative of a real need of some customisation which will make reporting accurate and timely in Mongolia.

Budget Preparation solution

Under the ECTAC project, the design and implementation of a budget planning module, to interface with GFMIS, was financed by an IDA credit with Government contribution. The TA components were expected to be implemented over a three year period, with the ICT investment following in years four and five of the project, once the multi-year approach to budget planning has taken root. Meanwhile, a simple internal built database called Fiscal was used for budget preparation. New budget preparation information system (BPIS) was expected to be used as a pilot application in 2010, and full roll-out was planned for the following year.

Due to various reasons and delays the present status (in Feb, 2013) of the BPIS is that only 60% of the modules were acceptable against a threshold of 90% (Worldbank, 2013b). It seems the contract with the consultants has been terminated, however, they (consultants) are still trying to make it work outside the contract.

With the partial acceptance of the modules, it was expected according to the World Bank results report mentioned above that the 2014 budget will be prepared on BPIS. However, enquiries in MOF revealed that 2014 budget has been prepared on FISCAL and not using BPIS and whether it will be used for 2015 budget preparation is still an open question. If the BPIS system is unable to meet the requirements of basic budget preparation, they may have to look for some other COTS solution which might be available in the market (Hashim & Allan, 1999, p. 26).

Lesson – It might appear that the budget preparation software are not difficult to implement. However, experience has shown that there can be problems with this assumption. The budgeting systems are different in different countries– Organisation based, Program based etc. It is considered that integration with treasury systems would be a natural extension though this is not always the case. However, in case of Mongolia, it seems another effort may be required to see whether the BPIS with operational acceptance can still be made to work. Nevertheless, there is no doubt that for any country implementing an FMIS, priority should be given to the budget execution
module. A layered approach as discussed earlier can be an option which deserves consideration. Once budget execution stabilises the budget preparation side can be considered.

Volume of Data to be handled by servers

It seems Mongolia has been lucky that there has not been a contention in the use of servers. With routine maintenance and replacements, GFMIS is running without any major problem. At the end of 2012, there was small problem which related to transactions being posted, the totals were not matching, although the transactions were being saved. This was resolved quickly without affecting normal operations.

Lesson – With normal maintenance and replacements, it seems there is no problem in Mongolia on this account.

Disaster Recovery Centre

Since the GFMIS is a very crucial application for the country, it is imperative that the contingency of non-availability of the application due to a disaster should be eliminated. It seems, at present, there is no DRC in Mongolia. This is a very important requirement and the MOF should set up such a centre at the earliest.

Lesson – Provision of a DRC should be an essential part of the GFMIS strategy. It is strongly recommended that Mongolia, and all the other countries, establish DRCs at the earliest to avoid a situation of stoppage of government payment system in the country in case of a disaster.

Start Chart of Accounts first

When the GFMIS was being configured there were some issues regarding standardisation of the COA which appeared. There was a need to ensure that the new COA be consistent with the budget accounts and the treasury, with some strong resistance to move to a “standardized” COA. This delayed the plan of implementation. A new implementation plan was prepared with a revised schedule in December, 2003 as the deadline for implementation GFMIS.

The Chart of Accounts (COA) and the Government accounting methodology including presentation of Government financial statements which were prepared and finalized in accordance with International Accounting Standards by the Government Accounting Advisor G. Oyungerel was approved by the Minister in December 18, 2000 to be tested on a trial basis at the Treasury Department of the MOF (central budget level) and the Government Building No.2 (budget entity level). It was tested on the interim software, which was developed by IT Consultant Sh. Oyunbaatar for future use in the GFMIS. As a result of successful test, in 2003 the final COA and accounting methodology was approved by the Minister’s order, became the main COA for future GFMIS data base configuration(Worldbank, 2006a, p. 23).

It has been claimed by almost everyone involved in the project at that time that the COA for Budget and treasury were in unison. Thus reporting from GFMIS was meeting the budget reporting needs. The real situation at present is that there is a lot of unmet budgetary reporting requirement, especially from the budget monitoring and management point of view. The organisational codes in the two systems are different, there is no recording of sources of
financing in GFMIS, the Economic Classification is also only partially matched and the program classification is absent in GFMIS. This mis-match in various segments of COA renders real time reporting from GFMIS impossible. Thus for getting budget execution reports from the data of GFMIS, bridging tables are used. This compromises the efficiency as well as accuracy of the reports. The existing COA in GFMIS only meets the monthly budget allocation well.

It is likely that the changes in the budget classification system, especially after the 2011 budget law, have rendered the two COAs more divergent. The budget side seems to have adopted the new classification as stipulated in the law but treasury is finding it difficult to make configuration changes in the GFMIS. In order to overcome this major shortcoming in the GFMIS, IMF is providing technical assistance and hopefully in near future this problem will be resolved.

Lesson - At present this seems to be the most important challenge in GFMIS for Mongolia. Even after operation of GFMIS for a number of years now, the COAs on the budget side and the treasury side are different. This results in belittling the benefits of GFMIS as far as real-time reporting on budget execution is concerned. An agreement on COA should be baseline in any GFMIS project implementation. It seems there was some agreement in the initial stages of the project but the divergence has grown later and has continued till now. Lesson for other countries is that a synchronised COA in the two system should be considered as virtually a mandatory condition.

System Integration

Since the modules like AP, GL etc. have been part of the same application and were implemented simultaneously, there was no major integration problem.

Commitment Accounting

On January 1, 2006, after the project closed in September 2005, Mongolia introduced full financial commitment accounting within GFMIS, marking an important milestone towards the government’s objective of improving financial management and further enhancing the sustainability of this component of the project. Full financial commitment accounting contributed to further improve cash management and expenditure planning. This practice, of late, has fallen into disuse.
Timor-Leste

Background

Occupying the mountainous eastern half of the island of Timor, Timor-Leste was a Portuguese colony for almost 450 years. The country unilaterally declared independence on November 28, 1975. This was followed by its occupation by Indonesia.

Following the intervention of a multi-lateral peacekeeping force, in 1999, the United Nations Transitional Administration in East Timor (UNTAET) was established with supreme executive, judicial, and legislative authority. At its height, UNTAET included almost 9,000 uniformed and civilian personnel. In 2001, elections were held for a Constituent Assembly, followed by the adoption of the Constitution and presidential elections in April 2002. The Democratic Republic of Timor-Leste fully restored its independence on May 20, 2002. The Constituent Assembly became the National Parliament. A 900-person United Nations Mission of Support in East Timor (UNMISET) was created. It focused primarily on peacekeeping, training and support to the Timor-Leste police force, together with the deployment of advisers to the GoTL (Government of Timor-Leste) and other State institutions. On May 20, 2005 UNMISET was succeeded by the United Nations Office in Timor-Leste (UNOTIL), then reduced to about 120 civilian and police advisers.

In 2006 East Timor again erupted into a crisis which prompted a military intervention by several other countries and led to the resignation of the Prime Minister Mari Alkatiri.


In 2002, building on extensive consultations throughout the country, the GoTL adopted a National Development Plan (NDP), which expressed the country’s strategies for sustainable growth and poverty reduction. A related Stability Program was developed in early 2003 to help prioritize NDP objectives. Sector Investment Programs (SIPs), which set out the details of objectives and planned investments in key sectors (15 to start with) were developed. Around the end of the last term of the government, the Government of Timor has prepared an ambitious Strategic Plan (2011-2030) which aims to transform the country into a middle income country by the year 2030.

The main source of the revenue in Timor-Leste is offshore oil and gas. In order to utilize the proceeds from this precious natural resource for the future generations of Timor, the Timor-Leste Petroleum Fund was established in 2005, and by Sep, 2013 it had reached a net worth of US$ 14.6 billion (Banco Central, 2013, p. 1). East Timor is labelled by the International Monetary Fund as the "most oil-dependent economy in the world" (IMF, 2011). The Petroleum Fund pays for nearly all of the government's annual budget, which has increased from $70 million in 2004 to $1.65 billion in 2013, excluding the donor component.
Initial IFMIS

Immediately after independence as a post-conflict nation, Timor-Leste had to start functioning almost from scratch. Whatever resources this country had were destroyed during the rioting prior to its becoming independent, therefore, new systems and people were required to commence the operations. The capacities were very low and the operations were required to start. Fortunately, the donor community was very generous in helping setting up the core systems in the country. With the donor support, FreeBalance software was installed in the Treasury in 2001, to take care of the payment and accounting functions. As the country has progressed and operations expanded further, the same system has been used for Treasury and other PFM activities.

Expansion of IFMIS

In order to strengthen Public Financial Management the Government of Timor-Leste had been placing greater emphasis on improving financial management systems. In 2008 the Ministry of Finance decided to significantly enhance the Financial Management Information System. The modules/upgrades were expected to enable the Government to significantly enhance the current FMIS. This included revamping the hardware connectivity between Ministry of Finance, Ministry of Infrastructure and other line ministries. FreeBalance was contracted to deliver software as well as minimal hardware to ensure end-to-end solution.

In addition to the benefits to the government it was hoped that improved IFMIS systems would benefit the country in terms of improved accountability and transparency and resulting gains in financial management, efficiency and equity. Increased government efficiency would result in better social and economic programs and the need for lower taxes.

Software developments included the following modules and portals:

### Treasury in Timor-Leste

There is a central treasury in the Ministry of Finance and at district level there are 7 treasury officers out of the 13 districts in the country and at present FMIS is not connected to the districts. Connectivity is for ministries in Dili, the capital city.

The total number of staff is 64 and 7 at the district level. The complement of IT staff is 8 and all are located at the central level.

The budget is cash based and the accounting follows the full cash basis of accounting having moved from modified cash basis in 2012. The two Charts of Accounts are unified.

The coverage of FMIS is for all the payments and receipts. Most of the payments are made through electronic payment systems about 20% are however, made by issue of cheques.

The data for monthly, quarterly and annual reports can be directly taken from the FMIS.

There is a Treasury Single Account in the country and the frequency of reconciliation is monthly.
Scope and functionality of FMIS in Timor-Leste

FMIS is based on a central system at the central treasury in Dili. It was originally setup in 2001.

The following functionality is provided in the system:

- Budget allocation, changes in the budget are entered in the system by using a text file which is created in a separate application called Performance Budgeting.
- At the centre MOF makes the payment, however, ministries can enter the vouchers for payments
- Commitments can be recorded in the system before the expenditure can be incurred
- All the revenues can be recorded in the system
- All the transactions are posted as they occur
- Allows cash management as the budget can be controlled monthly, quarterly etc.
- Monthly, quarterly or annual statements can be prepared using the data in FMIS.

It is treasury centric system because the ministries are required to send their payment requests to the treasury office either by entering the data themselves or the data entry is done in the treasury for effecting payments.

The Performance Budgeting system has not been integrated or interfaced with the FMIS. The data exchange between the two is done with text file for the budget management purposes.

The technical design of FMIS is based on FreeBalance. The version being used in Timor-Leste is version 7 which is web based. All the ministries are connected to the system. The number of users of FMIS is 100-200 and the named users are more than 500. The FMIS includes Accounts Payable, Accounts Receivable, General Ledger, Budget Preparation (in a separate system), Commitment Control and Contract Management.

The system is operational since 2001 and Performance Budget was implemented in 2009. Since then other portals have been built on top of these systems.

- Budget Transparency Portal
- eProcurement Portal
- Government Results Portal
- Contract management module (v7 web-based)
- Procurement module (v7 web-based)
- Assets Management module (v7 web-based)
- Civil Service Management/Payroll (v7 web-based)
- Document management system (v7 web-based)
- Manager’s dashboard
- Data Mart and OLAP (On-line analytical processing) tools
The Budget Transparency Portal is a public website where citizens, donors, NGOs and the press can analyse and interrogate RDTL budget execution information from the FMIS in an interactive manner. It presents budget information in terms of: amount appropriated by Parliament, funds that are Committed, Obligated, Actuals and current percentage of budget execution (Actuals+Obligations/100).

The eProcurement Portal allows citizens, donors, NGOs and the press to analyse and search information related to goods, services or works that RDTL is procuring. All tenders by Line Ministries would be posted at a single site, for potential bidders to be able to download tenders from the site, for award to be published there, and for all citizens to be able to follow all required procedures.

The Government Results Portal is the newest of the transparency suite of portals and it represents a complement to the Budget Transparency Portal and eProcurement Portal, that will allow Citizens, NGO’s and the Press to analyse and track in a dynamic manner what are the expected results of the major Government Projects against the RDTL’s Strategic Development Plan. The portal presents the project description, phases, objectives, outcomes per period and also links the project with the budget information (assigned budget and also budget execution) per fiscal year, including multi-year projects.

The Contract management module enables the government to keep track of its contracts execution, tasks, documents, payment and closure. It ensures that vendor performance meets contractual requirements. Tasks, payments, milestones, inspection reports, and approvals would be adapted through the workflow process built into the system.

Other software being implemented include the Managers Dashboard, Document Management System, and the Analytics (OLAP), which are Business Intelligence tools to support the decision making process.

The systems component covers support of key initiatives currently underway, including the decentralization and support of the Government Performance Budgeting system, Procurement Module, Government Fixed Assets, Payroll and Customized Management Reporting.

This project would contribute with greater government efficiency, accountability and transparency that would translate into social programs being more responsive to poverty reduction and other social needs.

**Lesson – If the basic IFMIS system is in place, a country can expand it’s scope and include other modules which can improve accountability and transparency at a time of its convenience.**

**Motivation for IFMIS**

While the initial motivation came from the basic need of running a treasury payment and accounting system, subsequent expansion of FMIS has origins in the desire to improve PFM systems as well as to bring greater transparency and accountability.

At that time there was a need to create stability and various national assets, and that meant increasing spending. In order to achieve this it was important that the fiscal expansion be accompanied by a corresponding increase in transparency and accountability. This led the Government in 2007 to institute wide ranging PFM reforms. In view of the MOF, being a
post conflict state the impetus came from trying to avoid the mistakes and crisis from the past and this provided adequate motivation for the political leaders. Combined with the need for the economy to grow and also improve stability and state building efforts, the demand for transparency prompted Govt. to develop tools such as Transparency Portal. This in turn supported the PFM reform process.

In views of the Minister of Finance, "Public financial management is the engine room for State building". She rejects the notion that government transformation should take 20-40 years (Pires, 2013). Thus large scale changes have been made in Timor-Leste in a relatively short period of time.

**Lesson –** Successful implementation of core modules of IFMIS can increase confidence in the Government and if the political support is present, expansion of IFMIS can be facilitated. Especially in post-conflict countries, PFM systems have to be robust to support the transformation of government and develop donor confidence in in-country systems.

### Procurement and Contracting

For the reasons of expediency in 2001 under UN Administration, FreeBalance, a Canadian company was nominated to operate a payment and accounting system. This became operational in 2001-02. With enhancements, upgrades and additional modules this provision of services has continued. While Budgeting and Financial Reporting has used Freebalance, Revenue and Customs have used SIGTAS andASYCUDA respectively. In addition support IT infrastructure such as servers and data backup are also included in the costs incurred on FMIS. Excluding the initial funding by the donors, the project has been funded through budgetary resources only. Details of incurred and projected FMIS expenditure is tabled below.

The connectivity of FMIS is at present to the Ministries only which are located in the capital city Dili. Later there are plans to connect to districts also.

**Table 5 - Expenditure on FMIS in Timor-Leste**

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Amount spent/ to be spent on FMIS Timor-Leste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donors</td>
<td>$ 3 million</td>
</tr>
<tr>
<td>Budgetary Funding</td>
<td>$ 27 million</td>
</tr>
<tr>
<td>Proposed funding 2014-2018</td>
<td>$ 22 million</td>
</tr>
</tbody>
</table>

**Lesson –** FMIS in Timor-Leste is operating in Treasury and ministries which are located within city limits. Plans for 2013 include de-concentration of Treasury to three districts and establishment of District Treasury, and FMIS systems will support this activity. This will eventually be extended to all thirteen districts in Timor-Leste. This is in contrast to some other countries like Vietnam, Indonesia and Mongolia where the geographical spread of the country is large and the connectivity has been established with the remote parts of the country. The amount spent on FMIS/GRP in Timor Leste has to be taken in the context of Timor Leste starting from almost non-existent
infrastructure. This could explain the costs of establishing systems being higher on connectivity per installation basis compared to larger countries.

The present study has not investigated the causes for cost variances for Timor Leste being higher than other countries in the region. To determine the causes, detailed analysis of the various components need to be conducted for costs to be identified and then compared between countries using factors such as population, geographical area and period of development. This might require more research.

Business process improvement

Since Timor is a small country with essentially a centralized treasury, in view of the MOF, the FMIS was successful because the IT systems were made to follow the processes not the other way around. Consequently, it took about nine months to a year to re-design the Ministry and internal processes to be more efficient. A number of systems inherited from UN were simplified and there was some resistance at first to these reforms as these functions were devolved to line ministries. The new FMIS systems were then designed around that. In 2009, the Budget Law was revised to replace the earlier law. The structure of the MoF has been changed due to changes in business process twice. The first was in 2008 whereby four General Directorates were created and the second change occurred in 2012. For example, Treasury has been upgraded from National Directorate (ND) to Directorate General; FMIS which was formerly under ND – Treasury is now a Directorate in its own right and reports direct to the Vice Minister of Finance demonstrating the importance Govt and MoF places on FMIS; and in future this Directorate would report directly to the Prime Minister further enhancing its reach and effectiveness.

Lesson – Being a small government, the process alterations were done to simplify inherited systems from UN and this resulted in some resistance. As many functions have now devolved to line ministries as a result of changes in the business processes, there were significant changes in the configuration of the software, and this had cost implications, as mentioned in the responses from the MOF. However, the point remains that the configuration changes normally do not incur additional costs in COTS.

Change Management and Communication

There was a gap in the capacity in almost all the areas – accounting, IT etc., however, there was no formal Change Management plan although the implementation plan included the aspect of change management. Capacity gap issues are still significant in Timor-Leste. MOF is bridging the gap progressively with capacity building and on the job training of the government staff on systems and business processes. Line Ministries are now much more exposed to the FMIS systems as compared to the past and they now have better understanding of concepts such as Chart of Accounts, Budget Controls and business process workflow. Daily support is provided to all Line Ministries via dedicated Help desk and by providing physical space for the Line Ministries to come and get direct support in using various Government Resource Planning (GRP) sub-systems in the MOF.
Project Management

In Timor, the project management was done purely internally. Since the expansion of the IFMIS was a budget funded activity there was no external pressure to include IV&V or Project Management component by hiring external consultants.

Lesson – Although software implementation is complex, in Timor it was handled well because of small dedicated teams. Moreover, there was no donor pressure to do things in a particular way and this, combined with dedicated teams, seems to have worked well in the opinion of MOF. However, more evidence might be needed to establish this in general if it is to be applied to smaller countries.

Customisation of the COTS

MOF required some degree of customized configuration to the COTS in order to accommodate various systems and integrating them all in one GRP (Government Resource Planning). Additional factor that drove upgrade to the new web-based version of GRP was the need to improve on the accessibility to the GRP by all Line Ministries and those agencies that have limited connectivity to the government network. The earlier version of FreeBalance was client/server based and this presented its own challenges for connectivity in Timor-Leste. The new V7 system is fully accessible using Internet or Intranet connection.

However, in comparison, the same system (older version) is running well in Mongolia where the connectivity is to all its provinces and districts including the ministries located in the capital. The provinces and their districts are spread hundreds of kilometers away from the capital in Mongolia.

Lesson – Some degree of customization has been made to suit Timor-Leste’s needs. Core FMIS system in Mongolia and Timor-Leste were based on version 6 of FreeBalance. It seems the version in Mongolia is running well whereas the same version in Timor-Leste posed challenges for connectivity. It is therefore advisable for the countries to discuss among themselves, in case they have similar systems, to identify what works and what does not.

Budget Preparation solution

The budgeting methodology in Timor is cash based and classification is organisation based. An application called Performance Budgeting (PB) is being used in Timor to prepare the budget, although performance budgeting, *per se*, is not used. In this application different ministries can do data entry for the budget requirements and after going through many cycles till the approval by parliament, the budget can be revised and altered. Line Ministries have been using the Performance Budgeting system since 2009.

The number of users of this application is fairly large (all the ministries) and the application has worked successfully as far as budget preparation is concerned. Since the budget is essentially cash based and projections for the forward year are not calculated on the basis of data in the system, the task is simple though. Most of the budget books can also be directly printed from this system.
For the budget management purposes i.e. making changes in the budget or doing virements, the system is also used. The system is also used to show the budget data on the portal for public to view on a daily basis through portal.

Further data does not need to be re-entered but the data exchange with the treasury for the budget allocation requires some manual intervention to allow for managers in Budget Directorate and Treasury to approve budget transactions (Virements). There are plans for improving this so that no manual intervention is needed. The possibility of two COAs being inconsistent is minimal now that FMIS has taken over the management of COA codes for all systems which are entered/updated simultaneously.

Lesson – It has been difficult to integrate the budget preparation and planning software with the Budget execution software in many countries. While Vietnam has not attempted it, Mongolia and Indonesia have not been successful in integrating their budget modules so far. Though the budgetary framework is not as exhaustive in Timor-Leste as in other larger countries and the number of budget entities or spending units is very small, it is still a good example of an independent solution for budget preparation and management. Other countries may keep their budget preparation systems separate from their FMIS, initially, as Timor-Leste and Vietnam have done.

Volume of Data to be handled by servers

Since the systems have been acquired very recently taking into account the volume of data growth, the present systems are adequate for operations. However, problems are faced some times due to connectivity and other bottlenecks.

Lesson – Correct estimation of data helps in running the servers efficiently without degrading connectivity and response times. However, in Timor, the problems are not due to capacity of servers but due to bottlenecks of physical infrastructure and connectivity to ministries.

Start Chart of Accounts first

Prior to 2009 the Chart of Accounts for budget and treasury were different but these were unified and they have been the same since. The budget is approved by the Parliament on cash basis and the accounts are also maintained on cash basis. MOF is the agency which is responsible for compiling the accounts for the entire government. The chart of account is very simple having five segments –Fund Source (4)/Division (6)/Activity (7)/Line Item (4)/Location (3). This can be rolled up into other relevant information.

In addition there are six (6) expenditure categories – Salary & Wages, Goods & Services, Transfers, Minor Capital, Capital and Development & Contingency.

The Parliament approves the budget based on Ministries and Divisions and it is further divided into categories and the upper level of line items called “items”. Breakup of the budget for lower levels of Government is done at the ministry level and FMIS controls the budget as usual subject to the provision of the 2009 Law.

Lesson – If COA issue is settled early, it can save time later. However, now that Timor-Leste has IFMIS running for a number of years, there is scope for improving the
classification system. It would be easy to add Economic and Program classification in the budget, and consider other budgetary frameworks such as MTEF etc.

System Integration

Since the source of IFMIS, its expansion and adoption of the GRP covering many modules was from the same vendor, there seem to be only minor integration issues. Integration with various systems in Line Ministries however continues to pose additional challenges.

**Lesson – When the installation involves the same vendor installing all its own products, the integration may be easier. Additional challenges are posed when several vendors are involved, running systems on different platforms.**

Utilisation of the new portals

The Budget Transparency Portal and other portals are public website where citizens, donors, NGOs and the press can analyse and interrogate RDTL budget execution information from the FMIS in an interactive manner. It presents budget information in terms of: amount appropriated by Parliament, funds that are Committed, Obligated and Actual Expenditures. This is regularly updated by the MOF. Like all new initiatives, there were teething problems when the portals were launched. This was brought out by an active NGO, Lao Hamatuk in a letter to the Minister of Finance in May, 2012 (LaoHamatuk, 2012).

Lao Hamatuk’s comments while praising many aspects of the initiatives also mentioned areas for improvement including:

- **Procurement Portal:** Need for regular updates of information including new tenders and contracts awarded
- **Budget Transparency Portal:** Need for greater detail of expenditures incurred by Ministries and Agencies of Government including information about how money has been used and to whom payments have been made.
- **Government Results Portal:** A request for further development of this portal including greater details of planning and stages of completion of large infrastructure projects. This will better reflect the provision of services such as health care, education and other services. The NGO felt that expenditure by project and percentages and timetables for completion would help users of the portal.

A major data cleaning exercise was undertaken by the FMIS unit of MOF, collaborated by other units of the Ministry of Finance as well as other Government Agencies. It involved retrieving and correcting data going back for ten years. This was primarily done to allow accurate comparative analysis to be prepared at a multi-year level. It culminated in the development of the data mart as well as supporting modules. This massive task, while extensive and time consuming was essential to enable meaningful analysis to be undertaken and correct management decisions to be made.

Recent review of the portals indicates that the situation has improved especially regards updating the portals is concerned (the budget transparency portal has already been mentioned earlier) and information on expenditures by projects are also provided.
For example, eProcurement portal gives current information on tenders and contracts awarded. An example of a contract awarded is shown below:

![Figure 2- Screen shot of eProcurement Portal](image)

As demonstrated by the interest shown by Lao Hamatuk, the need for more detailed information is obvious.

In order to gauge the frequency and effectiveness of these portals in general in the country more research might be needed among the stakeholders including within the government who visit these portals and use this information.

**Lesson –** It appears that Timor has invested heavily in several modules mainly the Budget Transparency, eprocurement, results portal etc. and these are regularly updated while there are some other functionalities like dash boards etc. which must be used regularly as a management control tool. There is a demand for more detailed information from some civil society organisations. It is important, as a next step, to develop the capacity in the citizenry to use the information provided by these portals.

**Other modules**

There are some other modules in the FMIS such as Contract management module (v7 web-based), Procurement module (v7 web-based) and other modules which work independently such as Assets Management module (v7 web-based), Civil Service Management/Payroll (v7 web-based), Document management system (v7 web-based) etc.

Since these are not the core modules in FMIS, this study excludes these modules. However, it is understood that procurement and contract management modules were procured by Timor in the earlier version of FreeBalance and the current upgrade is only to version 7.
Upgrade of Financials to V7

In January 2013, RDTL Core Financials and Purchasing modules have been upgraded from Version 6.3 to 7.0 (web-based). This upgrade represents a major improvement to the GRP in that it upgrades the financials (treasury system) to new web-based version. Additional improvement includes improved printing of various forms directly from financials and migration of the government’s reference data for 2012 to version 7.
Conclusions

Introduction

In this chapter, the lessons from different countries have been consolidated. A number of conclusions from this study revalidate the conclusions drawn in other studies such as (Dener et al., 2011). Some conclusions are however, different because of the context of these countries. In the following sections, firstly, the broad conclusions which are general in nature but crucial have been listed. In the later sections, specific conclusions on different aspects have been given.

Broad conclusions

a) **There is hierarchy of requirements**, in order of importance for successful IFMIS/Treasury reform. This can be listed as follows:
   - Political will to implement sound PFM policies and procedures and support within government (the MOF and others) for reform measures
   - Realistic Budget Formulation of the project
   - Institutional arrangements to implement Fiscal Control
     - Control of Treasury over all Government Financial Resources - Consolidation of Bank Accounts in a TSA
     - Routing of Transactions through a Treasury office/ Treasury staff
   - HR Capacity within implementing agencies to implement reform measures and associated systems
   - Appropriate Technology to support transaction processing and data management
     - Application Software which reflects functional processes
     - Technology Platform to implement Software (H/W, Networking, Middleware)

   It is important to note here that the technical aspects figure lower down in hierarchy, whereas often times, much more time and effort is spent on arguing about the technology choices than those elements that are more important.

b) **Strong Government and MOF Commitment** have been a key factor for the success of Reform Projects. Their commitment can be achieved better if projects are framed as public expenditure management (PEM) systems reform initiatives rather than just accounting systems reform. Senior level policy makers in MOF and donor organizations relate to this better. Linkages can then be established between project and requirements under policy based lending. The MOF then starts taking an active interest in ensuring that project milestones are met and the role of leadership is very crucial. The projects implementation stage in large countries stretches anywhere from 3-10 years. This would see changes in the leadership both political as well as bureaucratic. Consistent support of
the leadership is necessary, especially when the project is not doing well. Motivating staff of the project is also an important function which the leadership has to perform. The Vietnam, Indonesia and Mongolia cases illustrate this.

c) **Project design:** It is important that project design be driven by functional rather than technical considerations. It is necessary to focus priorities on reforming the budget execution processes, setting up the institutions and associated systems and procedures.

Some key implementation pointers regarding systems design are:

- Systems should be designed along functional and not organizational lines.
- Define the contours of the system clearly to avoid duplicate investments
- Budget Department, Treasury, and Line Ministries should use the same system to process their transactions and share databases
- Budget Preparation and Budget Execution should use the same chart of Accounts.
- Transactions should be captured in real time as they occur.
- Financial controls should be applied in ex-ante mode to all transactions processed by the system. (e.g. funds availability checking on budgeted expenditures prior to committing funds or making payment). (The old Indonesia projects failed because this was not done)
- Ex-post transaction posting should be avoided.
- No expenditure transaction should be processed outside the system. Data should be captured only once as an accounting transaction progresses through the system. The scope of the system should include: Budget Funds- Payroll, Debt, Subsidies, Fiscal transfers, EBFs, Donor Funds and Technical revenues
- The IFMIS databases should be treated as the primary source for financial reporting within Government and there should be no second set of books.

d) **Implementation Pre-requisites**

A good quality telecommunications network (minimum bandwidth 128kbs) networking is an important pre-requisite. Many countries now have implemented, or are in the process of implementing, good wide area telecommunications networks covering the major cities, town and districts where the IFMIS sites would likely be located. This is therefore becoming less of a constraint to system implementation. While telecommunications has not proved to be a problem in Vietnam or Indonesia but was a problem in Mongolia and in Timor-Leste, this could also be a challenge when connectivity is established to remote areas.

e) **Availability of Technical Expertise**

An IFMIS type system is an integrated government-wide system with multiple users. The Treasury and its subordinate offices are responsible for the bulk of the transaction processing that is carried out through the system. However, end-user groups upstream and units outside the Treasury such as the MoF and the Budget administrators, Line
Departments/Ministries also use the system for the performance of their day to day financial operations.

Normally a central organization is responsible for maintenance of the integrity of the databases and ensuring smooth and uninterrupted operation of the systems network. End-user technical support also is provided through this organization.

This central organization is required to be staffed largely by technical experts. It has been observed that in many countries the technical skills required for these jobs are not ordinarily available within government and are unlikely to be available in the future at normal government salary scales. Pay and remuneration in Government for technical staff to staff such an organization has been a key constraint in many countries. This coupled with the lack of career prospects for technical IT staff within Government has been a major area of concern for sustainability of such projects.

It needs to be noted that the IFMIS is an operational mission-critical financial system used by all government accounting and budgeting entities within government for the day to day performance of their functions. The setting up and staffing of the supporting organization is critical for the long term operational sustainability of the IFMIS and the continuity of the Government’s budget management and financial management operations and reporting.

It is therefore necessary that Governments plan and decide on the organizational structure of the Central Organization to be set up to perform the key technical tasks associated with the operation and maintenance of the IFMIS system and develop strategies to attract and retain the technical skills required in this unit.

Retention of highly skilled technical personnel within Government is a common problem faced by many governments and options chosen by other countries include:

- **Option A**: Set up an organizational unit within Government, staffed with employees paid at special market-based salary scales (for both external personnel and qualified civil servants), designed to attract professionals on long term contracts.

- **Option B**: Hire the technical skills directly from the market on year to year contracts and manage them through regular mainstreamed civil servants. Essentially a short term measure normally adopted in development phases such as during the PIFRA/ FABS (Project to Improve Financial Reporting in Pakistan and Financial Accountability and Budget System) implementation, but may not be suitable as a long term solution. Without good in-house technical management expertise, the tendency may be to hire short term consultants to fulfil immediate needs, limiting the development of a long term vision/plans for systems and technology platform and requirements. This can leave serious gaps in the skills/expertise required to run a mission critical system in a stable mode and plan for its future growth and enhancement.

- **Option C**: Outsource the technical maintenance and operation of the systems to specialized firms. Used mainly by countries such as the USA
who have a developed market for such services and firms who regularly
cater to these needs. This option may be the easiest to implement in many
developing countries but could be the most expensive since firms charge a
significant overhead for providing the technical skills and expertise
required. This option also requires good in-house technical contract
management capacity and consideration of issues such as information
security.

Option A would be the preferred option since it would build permanent in-house
capacity within government and provide a career path for government employees
appointed to the organization. It is necessary that Governments develop job
descriptions for the positions listed in the chart and more importantly, specify the
technical qualifications and experience that are required for the positions. Officers
within the government who fulfil these technical qualifications and experience criteria
could be specified for these positions. The key requirement is to match the skills of
individuals with the required skills and experience profile of the positions.

It would be highly desirable for Government to have the organization structure
reviewed by an external consultant (engaged on a short term local consultancy). The
review would validate the requirements for the central technical organization, ensure
that it caters for all aspects and technical requirements for setting up the organization
to run mission critical systems and help Government in obtaining the necessary
budgetary endorsements from the MoF.

Adequate Technical capacity is an issue in all the projects studied.

f) Training

Training needs can be divided in to several categories:

- Technical training in the application software, system software databases,
  networking systems LAN/WAN, information security systems, selected for
  systems implementation.
- End user training in the use of systems,
- Training of managers in the use of information available from the systems data
  bases.

Arrangements need to be made for imparting training to each of these categories.
Technical training will need to be given to a select group of technical staff who are
responsible for the maintenance and operation of the technical aspects of the system.
This training is normally available through courses offered by the vendor of the H/W/
and software tools that are acquired for system implementation. Training could be
expensive but is necessary and is readily available.

Under the second category large numbers of staff will need to be trained to operate
and manage the new system and it is this category of training that needs the most
attention. The large numbers involved can appear overwhelming. However, most
Governments have training institutions which have been used successfully to impart
training. It is important that the training program is matched to requirements and it
needs to be noted that most staff need to know only specific features of the system and training, at least in the initial stages and training can be limited to these features initially. Training should be coordinated closely with implementation plans and focused to specific requirements of a given site and should be imparted just before site implementation. It is important to set up a help desk, hand holding clinics, and train a group of power users thoroughly who can be used subsequently as trainers or technical resource persons for other staff. It has been observed that even in situations where staff have had little or no previous exposure to computer based systems, operational end user staff have readily transitioned to the use of these systems.

The information available for use of managers also needs to be show-cased to them. Normally, the new information available in the IFMIS will be substantially more and detailed than they were used to getting earlier. Training this user group will further enhance the utilisation. In certain ways, these are the real users of the system as they will be involved in taking decisions based on this information.

Training is a fundamental requirement in all the projects

g) Plan for realistic time frames for project execution

The whole process of setting up the legal and institutional framework, systems design, procurement and implementation can easily take 8-10 years as mentioned earlier. Sustaining management support over long periods has been a problem. Linkage to IMF program and/ or SAL (Structural Adjustment Lending) operations has often been used to reinforce commitment and sometimes it has proved useful to adopt a two-step implementation strategy in which interim technical solutions have been implemented to support the reforms followed by full function systems. This has proved useful.

In the following sections, other conclusions have been summarised.

Motivating Factors

Motivating factor in most of the studied project was mainly a need to modernise the PFM system and leveraging IT to make the process of payment and accounting more efficient. In case of Timor-Leste, the start-up of treasury operations was done with FreeBalance and later it laid foundations for further enhancing the accountability and transparency of the budget execution process.

Procurement

Procurement of IT systems is difficult and this difficulty is compounded by the lack of familiarity with the World Bank procedures for procurement in loan/grant funded IFMIS Projects. Drawing up specification and preparation of bidding document for large IT system which includes COTS choice, its implementation and hardware purchase puts a lot of pressure on the procurement staff. This is quite different to their other procurement activities since there are many choices which are required to be considered and frozen whether it should be a turnkey contract, or different components should be separately procured is one such difficult choice. Hiring of IV&V consultants could be helpful in some situations. The IV&V experiences in Indonesia and Vietnam are very different. In some cases it is claimed that since the funding was done entirely through the budget therefore they did not have to
follow World Bank guidelines and hence the procurement was easier. If a country is already locked in with one vendor, do they have a choice to go for an open bidding? If not, there could be difficulties in pricing and determining a reasonable price.

This difference in the result of the similar procedure of the World Bank in different contexts shows the complex nature of procurement.

**Business Process**

Sequencing of different activities is very crucial for IFMIS. Sometime such obvious activities as delivery of hardware much before the readiness of software could create difficult situation, as happened in the case of Indonesia. The hardware had been delivered almost two years back while piloting has not even begun. Sequencing is also crucial for the single most important part – business process improvement. While most of the countries were engaged in major PFM reforms such as establishing TSA, improving budget laws and structures of their finance ministries, it seems the business process changes either did not start well before the COTS consultant was in place or even started after the COTS consultant was hired. The lack of clarity on this will have serious consequences. In government sector, making business process change is not easy. It is tedious and time consuming and the new process may take months if not years to be frozen. This has to be kept in mind before deciding to establish a modern IFMIS system. Knowledge of how processes are managed in the possible future COTS solution would be helpful in determining the best possible process for the country.

In Indonesia, although budget preparation was to be included in SPAN, however, administrative and political considerations weighed in favour of continuing the posting of DIPA by the DG Budget for all the spending units, creating a process stage which could not be considered ideal. So operationally, sometimes it may be difficult to adopt certain practices and practical considerations are given more weight.

Another aspect which needs consideration is which are the core-processes which need to be re-engineered and what are at the processes at lower priorities and can be handled through the practices in the COTS solution.

**Change Management**

Implementing IFMIS potentially brings about major changes in the operating procedures in the organisation. Therefore change has to be managed in such a way that disruption and disenchantment could be minimised especially in an environment when the units are used to functioning in a particular way. It could be the case of budget entities operating bank accounts and preparing financial accounts themselves in Mongolia or spending units spending their own revenue in Indonesia or similar independence of the spending units in Vietnam. The departure from previous way of doing business can create unhappiness which could compromise the outcome therefore management of change is significant. In case of implementation of IFMIS, these changes are in addition to the changes of learning the operations of a new software. COTS software in most cases is highly structured and does not allow changes and manipulations further restricting the freedoms which might have been possible in their simple, standalone legacy system. A large component of change management would be developing a strategy for such a change and then provide awareness and training in such a way that this could be converted into a positive energy toward
embracing the new system Indonesia outsourced it while in case of Vietnam their main consultant was responsible for managing this change process. Mongolia did it themselves with the donor support and in Timor-Leste also they did it themselves. This process could be handled in-house or it could be hired out but no single prescription can work for every country.

In Vietnam, the training component of the change management was to be managed under the PMP in a different manner. However, country practices and experience showed that changes need to be made in the training plan and the target of training the user community was achieved my making suitable modifications by changing to a decentralised method of training.

Project Management

Project Management is also a very crucial dimension since IFMIS projects are complex and take many years to fructify. First of all it must be evaluated whether the capacity to manage such a project exists in the MOF or not. In case, it is felt that the capacity exist, there is no problem, if not, there is no harm in hiring an outside agency with enough suitable experience. In case of Indonesia their IV&V consultant later did the PM work and although it was good but the project is still taking longer than anticipated to finish. The question therefore is – whether the PM consultant understood the risks and executed strategies to mitigate the risks adequately. Vietnam managed this process themselves and although the PMU had many sleepless nights they succeeded in fully implementing TABMIS. In order to divide the task of general administration of the contract and technical side, they divided the work in the PMU and a TABMIS Implementation Unit (TIU) was created for technical side and the general administration was left for PMU. In case of Mongolia, they managed it themselves with support from the donors and completed the project, although after many delays. While success of IFMIS project depends on many factors, PM was one of the most important factor in all these countries.

Integration

There are many countries which have a number of small applications which are performing small tasks well. In a simple combination of manual and automated processes these applications would be helpful. But as they progress to gain substantial efficiencies and accuracies in the financial information, these applications could become bottlenecks. While thinking of an integrated solution, it may possibly not be advisable to think of an expensive solution to be implemented at thousands of locations thus increasing the cost of licences etc. However, at the same time to bridge the gap, it must be considered that the new and inexpensive application(s) which are created do not become obstacles. A study by research firm IDC (2002) based on 1,350 interviews indicated that more than 80 per cent of CIOs (Chief Information Officers) and CTOs (Chief Technology Officers) believed integration was either mandatory for addressing mission-critical activities or a key enabler for meeting business-critical needs. Integration is therefore a challenge that is as common to commercial organisations attempting large-scale integration projects as it is to governments (Lam, 2005, p. 513).
In Indonesia and Vietnam but for the price of licence, it seems the IFMIS might have been made available to a larger number of units thus expanding the benefits of integration. Thus the full benefits of integration have been realised only partially in these implementations.

Budget preparation solution
Integration of budget life cycle (planning, preparation, allocation and management) with the budget execution (spending, monitoring, and reporting) appears a natural choice, however, due to various reasons (both organizational and technical), it has remained a challenge in many countries. It seems Indonesia was no different. Vietnam made a choice early in the life cycle of IFMIS project not to include budget preparation part. In Mongolia this part has struggled for many years and only 60% modules could be accepted by Feb, 2013 (Worldbank, 2013b). In Timor-Leste, however, a simple standalone budget system is working since 2009.

Countries can consider a modular approach to IFMIS, the budget execution part may be the base module and other modules can evolve in progression as the experience is gained. It could also be considered that the two or more systems which can coexist, and are able to maintain internal data consistency through interfacing, sharing or synchronising data, form part of such an approach.

Different basis of accounts
In countries like Indonesia, Vietnam and Mongolia, the ministries and their lower level entities are required to maintain accounts based on accrual principles but since the budget is cash based the budget execution is also cash-based, or modified cash system at the centre. Treasuries are therefore managing their systems as mainly cash based payment systems. The exchange of payment information between the treasury systems and the ministries and other agencies is either through re-entry of data in the accounting systems of budget entities/spending units or through text file based exchange or through a portal. This creates a mishmash of different applications serving different purposes.

In case of Mongolia, small home grown systems called ACOLOUS and PLASTIC are used for monthly, six monthly and annual compilation of accounts. In case of Indonesia a similar middle layer application called SAKTI is being developed. In case of Vietnam too there are applications which make this data exchange possible. This may not be an ideal situation.

This implies that governments have to think of an Enterprise Architecture (EA) strategy in future to ensure investments in ICT give returns in future. Enterprise architecture is the organizing logic for an organization’s core business processes and IT capabilities captured in a set of policies and technical choices, to achieve business standardization and integration requirements of the firm’s operating model (Ross, Weill, & Robertson, 2006). EA is to an organization’s operations and systems what a set of blueprints is to a building. An organization’s EA specifies business and technical governance platform on which the enterprise designs and builds its IT systems. Typically, Government is the largest organization in almost every country and with size comes complexity. EA effectively supports the business, enables information sharing across departments, divisions, agencies, enhances management’s ability to deliver effective and timely services, and improves operational efficiencies in a disciplined manner through effective use of ICT (Saha, 2009, p.
4). Singapore government has thought of such an Enterprise Architecture for the Government and this could serve as an example to other countries.

Level of customisation

As explained in the chapter on Introduction, the term customisation is misunderstood. While real-customisation is altering the basic functionality of COTS, configuration and creation of reports is also sometimes erroneously referred to as customisation.

How much to customise will always remain a challenge in COTS based IFMIS systems since there is no magic formula. Least customisation forces the organisation to adopt the business processes and workflows as built in the COTS and thus the organisation might have to make extensive changes in the native business processes and workflows which might create its own problems in the government. On the other hand if there is increase in customisation to meet more and more of the government business processes, apart from being expensive, the IFMIS could become tied to a particular version of the COTS and hence if the support to the COTS is discontinued by the original supplier, the maintenance of application will become a problem in future. At the same time the concept of the so called “best practices” also appears a myth if the COTS is to be implemented in the government sector. So for IFMIS, a judicious compromise has to be made somewhere between these extremes.

System architecture

A problem faced in Indonesia was that initially the consultants did not deploy an expert who had knowledge of a complete solution architecture. When the experts of different modules configured individual modules and tried to integrate the whole COTS, there were problems and satisfactory integration required more work which led to delay. As Aristotle said, “the whole is more than the sum of parts” and this needs to be kept in mind.

Though the systems included in this study were based on central architecture, there are a number of other countries which have implemented a decentralisation or distributed data base structure for application architecture. This has some advantages. The countries desirous of implementing IFMIS can consider this model also (Russia and Pakistan etc.).

Data volume estimation

Experience in Vietnam and Indonesia shows that the estimation of volume of data, and number of transactions to be handled in the prospective system, both erred on the lower side. This caused delay when the system was rolled-out. Since public procurement either with government’s own resources or under the donor funding is time-consuming, special attention needs to be given to this aspect while preparing estimation of future data server needs.

Disaster Recovery Centre

As IFMIS system takes root in the country, the dependency of different agencies increases on the proper functioning of the system. In some cases like Vietnam or Mongolia, there is a unified government and if IFMIS stops, all the government payments stop. In case of a disaster, data loss and consequential loss due to stoppage of operation will be tremendous. Therefore establishment of a modern Data/Disaster Recovery Centre is essential. Vietnam
had a close call when the system had been operating in a number of provinces. They were lucky and were able to escape with small loss of data and this triggered them to establish DRC faster. At present, Indonesia and Vietnam have world-class DRC centres where as Mongolia and Timor-Leste have to do some work on this.

Another aspect relating to the DRC is that if more than one data warehouse or DRC is created, the data synchronisation should be planned in such a way that they do not go out of phase.

Chart of Account

Chart of Account is considered as a lynchpin of a modern PFM system (Cooper & Pattanayak, 2011). Implementing an IFMIS project gives an opportunity to think de-novo how to structure the COA. Through IT systems it is possible to manage a multipurpose COA which can cater to diverse reporting needs. It could provide compliance with Organisational Classification, Economic Classification, Functional Classification, GFS, SNA or any other requirement. An agreement on what should be COA that effectively services budgeting, budget execution and other consumers of reports is necessary. In Indonesia and Vietnam it took long time but was finally agreed and they were able to devise a unified COA. Unfortunately, in Mongolia, it seems the COAs (Budget and Treasury) had some level of unification in the earlier stages but overtime has deviated substantially from the requirements, especially in terms of the new budget law of 2011. In Timor-Leste, the two COAs were different till 2009, but were aligned later with some effort.

It is interesting to note that while GFMIS was being implemented in Mongolia, there was some delays in the project implementation then too due to disagreement over the unification of the COA. Despite this being a very fundamental issue, it seems implementing this has nevertheless created problems in Mongolia.

Timing of Piloting

The pilots were to be started in Indonesia during Oct/Nov 2013, a period when the financial year is also coming to an end. In case of Vietnam once the pilots were successful, although the initial plan was very ambitious but examining the experience of deploying TABMIS at other locations, they reduced that ambitious number of 10 provinces a month to a more manageable, 3 provinces per month. Treasuries typically have phases when they are very busy, especially at the end of the financial year or beginning of the financial year. Such periods should be avoided to so as not to stretch their capacities.

Support for IFMIS

Support - both during implementation and later would be important, especially if the number of installations is large and are in far-flung areas. Helpdesks would have to be created and manned by experts so that adequate level of support is provided to all the units. In addition to technical skills, the helpdesk personnel will need a requisite level of soft skills also.

Benefits of donor support

Donor support can be important in implementation. The experience of World Bank in this type of projects is substantial. Such support is not necessarily in terms of the financing but
also in almost all the other dimensions of the project – procurement, project management, business process reengineering, change management, technical knowhow etc. This experience acquired from similar situations elsewhere in the world will help the project. Finally to resolve critical issues between consultants and the government or even the internal issues within the government, the role of supportive donors could be beneficial. Three of the projects in this study have been financed by the World Bank. In each of these countries the donor support has been appreciated by the countries.

Contractor Management

Management of contractors plays a part in large IFMIS project since several projects will run for many years before being finally completed. It also takes some time for both sides to understand each other and this requires patience from both sides. Experiences of both Indonesia and Vietnam point in this direction. Initially the relationships between the two in Indonesia as well as Vietnam were reported to be cold but after sometime their relationship improved as teams worked together towards a common goal.

Sub contractor

Role of a local contractor could also be significant in long run. Firstly this could help in the initial installation, training, maintenance etc. Later if the local contractor is capable, they can take over the supporting role as in Vietnam. In case of Indonesia, local contractors are being used to develop feeder applications such as SAKTI or Custom Web for SPAN and in the long run, this could reduce maintenance costs. In Mongolia also a local contractor was hired for networking and hardware, although maintenance now is done by the MOF themselves.

Way forward

Closure of an IFMIS project is end of only its first chapter in this enterprise. Sustainability of the IFMIS is the next immediate question. Countries can then start thinking of expanding the scope and coverage as Timor-Leste had done and included transparency portal and results portal. Alternately, a country can think like Vietnam where they are considering enlarging TABMIS and make it a GFMIS. It could also happen as in case of Mongolia that the same activity continues for successive years in spite of a level of success in the initial stages. Completion of IFMIS should not be considered as an end point since there will always be scope for moving this achievement to higher levels including budget planning and preparation, transparency portals, dash-boards, a GFMIS etc.
MOF. (2009). Mid term review of GFMRAP.


Worldbank. (2003a). Development Credit Agreement (Public Financial Management Reform Project) between SOCIALIST REPUBLIC OF VIETNAM and INTERNATIONAL DEVELOPMENT ASSOCIATION.


<table>
<thead>
<tr>
<th>Question</th>
<th>Vietnam</th>
<th>Indonesia</th>
<th>MONGOLIA</th>
<th>TIMOR LESTE</th>
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<tbody>
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<td></td>
<td>Indonesia</td>
<td>MONGOLIA</td>
<td>TIMOR LESTE</td>
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<td>2. Is there a separate Budget Law/Regulation</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>3. Is there a separate Treasury Law/Regulation (Decree, for example)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>4. Is there TSA? (Treasury Single Account means all the transactions of receipt and payment of government ultimately pass to a single account in the bank)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Is the Treasury or other agency responsible for payments against budgetary allocations</td>
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<td>Treasury</td>
<td>Treasury</td>
<td></td>
</tr>
<tr>
<td>5.1 Give the name of the agency making payment, if it is other than treasury</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5.2 Does treasury make payments against consolidated funds or against deposits of agencies own funds</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>5.3 If the answer to above question is “yes”, what is the percentage of such payments against the payments from the consolidated funds</td>
<td>&gt;50%</td>
<td></td>
<td>&gt;50%</td>
<td>&gt;50%</td>
</tr>
<tr>
<td>5.4 Does the treasury collect revenue?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5.5 Is treasury responsible for cash management?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5.6 Is treasury issuing securities/bonds?</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Question</td>
<td>Vietnam</td>
<td>Indonesia</td>
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<td>TIMOR LESTE</td>
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<td>-----------</td>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>5.7 Is treasury responsible for debt management - external</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>5.8 Is treasury responsible for debt management - internal</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>5.9 Is treasury responsible for aid management</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>5.10 Is treasury responsible for Periodical accounting/financial stmt?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>6. Total number of MoF/Treasury offices:</td>
<td>211</td>
<td>208</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1 Total number of MoF/Treasury offices - Central level</td>
<td>1</td>
<td>8 directorates at HQ</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>6.2 Total number of MoF/Treasury offices - Regional level</td>
<td>33</td>
<td>30</td>
<td>384</td>
<td></td>
</tr>
<tr>
<td>6.3 Total number of MoF/Treasury offices - District level</td>
<td>178</td>
<td>177</td>
<td>25</td>
<td>7</td>
</tr>
<tr>
<td>7 Total number of MoF/Treasury Staff</td>
<td>8000</td>
<td>appx 9000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.1 Total number of MoF/Treasury Staff - Central level</td>
<td>50</td>
<td>appx 1000</td>
<td>44</td>
<td>64</td>
</tr>
<tr>
<td>7.2 Total number of MoF/Treasury Staff - Regional level</td>
<td>1200</td>
<td>appx 3000</td>
<td>771</td>
<td></td>
</tr>
<tr>
<td>7.3 Total number of MoF/Treasury Staff - District level</td>
<td>5500</td>
<td>appx 5000</td>
<td>85</td>
<td>7</td>
</tr>
<tr>
<td>8. Total number of MoF/Treasury Information Technology specialists (as staff members):</td>
<td>401</td>
<td>appx 400</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8.1 Total number of MoF/Treasury Information Technology specialists (as staff members) - Central level</td>
<td>190</td>
<td>appx 200</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Question</td>
<td>Vietnam</td>
<td>Indonesia</td>
<td>MONGOLIA</td>
<td>TIMOR LESTE</td>
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<td>-------------------------------------------------------------------------</td>
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<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>8.2 Total number of MoF/Treasury Information Technology specialists (as staff members) - Regional level</td>
<td>33</td>
<td>appx 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.3 Total number of MoF/Treasury Information Technology specialists (as staff members) - District level</td>
<td>178</td>
<td>appx 170</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.1 Is FMIS developed using External Loan</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>9.2 Is FMIS developed using External Grant</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>10. Was there a budgetary funding of FMIS</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>11. If the funding is mixed then the breakup of the funding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.1 Loan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.2 Donor Funding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.3 Budgetary Funding</td>
<td></td>
<td>3 MILLION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Components of Annual Budget serviced by Treasury - Central</td>
<td>25%-50%</td>
<td>50%-75%</td>
<td>Fully (100%)</td>
<td></td>
</tr>
<tr>
<td>12.1 Components of Annual Budget serviced by Treasury - Regional</td>
<td>&lt;25%</td>
<td>&lt;25%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.2 Components of Annual Budget serviced by Treasury - District level</td>
<td>50%-75%</td>
<td>&lt;25%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Is there MTBF in the country</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.1 If there is MTBF in the country, since when, mention the year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.2 Is there is MTEF in the country</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.2 If there is MTEF in the country, since when, mention the year</td>
<td></td>
<td></td>
<td>2005</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Vietnam</td>
<td>Indonesia</td>
<td>MONGOLIA</td>
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</tr>
<tr>
<td>14. Is there a unified CoA (Chart of Account)? Unified means that the same COA is used for budget preparation and presentation to legislature and for budget execution and reporting.</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>15. Is BC (Budget Classification) aligned with CoA?</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>16. What method of classification is used in presentation of budget</td>
<td>Program Classification</td>
<td>Program, organization, economics, functional, and other classifications</td>
<td>Economic Classification, Functional Classification (COFOG), Program Classification, Classification based on Administrative units - spending agencies (Ministries /divisions /Directorates etc.)</td>
<td>Economic Classification, Functional Classification (COFOG), Program Classification, Classification based on Administrative units - spending agencies (Ministries /divisions /Directorates etc.)</td>
</tr>
<tr>
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<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>17. What method of classification is used in financial accounting while making payments in the treasury?</td>
<td>Program Classification</td>
<td>Program, organization, economics, functional, and other classifications</td>
<td>Economic Classification, Functional Classification (COFOG), Classification based on Administrative units - spending agencies (Ministries/divisions/Directorates etc.)</td>
<td>Economic Classification, Functional Classification (COFOG), Program Classification, Classification based on Administrative units - spending agencies (Ministries/divisions/Directorates etc.)</td>
</tr>
<tr>
<td>18. Method of accounting used by the Treasury (FMIS).</td>
<td>Modified cash</td>
<td>Cash</td>
<td>Cash</td>
<td>Cash</td>
</tr>
<tr>
<td>19. Method of accounting used by the Budget Institutions</td>
<td>Accrual</td>
<td>Cash toward accrual</td>
<td>Cash, Modified Accrual</td>
<td>Cash</td>
</tr>
<tr>
<td>20. Does Chart of account allow producing reports directly from the FMIS based on</td>
<td>Program based</td>
<td>yes</td>
<td>Economic Classification, Functional classification, Administrative/Organisation</td>
<td>Economic Classification, Functional classification, Program based,</td>
</tr>
<tr>
<td>Question</td>
<td>Vietnam</td>
<td>Indonesia</td>
<td>Mongolia</td>
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<td></td>
</tr>
<tr>
<td>21. FMIS is used for all Budgetary Payments/receipts</td>
<td>Yes</td>
<td>NO</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>21.1 If the answer to above is No, what other system is used</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. What are the payments which are not covered in the FMIS (approximate annual amount)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.1 What are the receipts which are not covered in the FMIS (approximate annual amount)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.1 Percentage of payments referred to in the last question</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.2 Percentage of receipts referred to in the last question</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Are in-year reports (monthly, quarterly etc.) prepared directly from the FMIS without any further re-processing in spreadsheets etc.,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. Are in-year reports used as input to Spreadsheets in which the monthly or quarterly reports are prepared</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. Payments are centralised at one place in FMIS or ministries/departments/district can make their own payments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Vietnam</td>
<td>Indonesia</td>
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<td>TIMOR LESTE</td>
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</tr>
<tr>
<td>27. Most common method of making payments is Electronic Payments or by Cheque?</td>
<td>Electronic Payments</td>
<td>Electronic Payments</td>
<td>Electronic Payments</td>
<td>Electronic Payments</td>
</tr>
<tr>
<td>28.1 Approximately what percentage of payments (number of transactions) are made electronically</td>
<td>100%</td>
<td>99%</td>
<td>100%</td>
<td>28600</td>
</tr>
<tr>
<td>28.2 Approximately what percentage of payments (number of transactions) are made by cheque</td>
<td>1% as petty cash</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.1 Approx. what percentage of payments (in terms of amounts) are made electronically</td>
<td>100%</td>
<td>100%</td>
<td>1 BILLION</td>
<td></td>
</tr>
<tr>
<td>29.2 Approx. what percentage of payments (in terms of amounts) are made by cheque</td>
<td>none</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. Is there a need for reconciliation of expenditure with the Ministries/Departments?</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>31. Is there a need for reconciliation of receipts with the Ministries/Departments?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>32. What is the frequency of bank reconciliation?</td>
<td>Daily</td>
<td>Daily</td>
<td>Monthly</td>
<td></td>
</tr>
<tr>
<td>33. Is budget also prepared using the FMIS?</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>34. After finalisation of the budget, is the budget allocated to different agencies using the FMIS?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>35. Is the finalized budget available immediately after approval in the FMIS for agencies (line ministries) to incur expenditure against appropriations/ allotments</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Question</td>
<td>Vietnam</td>
<td>Indonesia</td>
<td>MONGOLIA</td>
<td>TIMOR LESTE</td>
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</tr>
<tr>
<td>36. Is the finalised budget re-entered in the FMIS through manual entry or by importing text files etc.</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>37. Are re-appropriations/virements directly made into the FMIS</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>38. Are final accounts prepared using the FMIS</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>39. The Final accounts are prepared using data from FMIS but the statements are prepared in Spread sheets</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>40. Average time taken in finalisation of accounts after end of fiscal year</td>
<td>One to Three months</td>
<td>One to Six months</td>
<td>More than six months</td>
<td>Three to Six months</td>
</tr>
<tr>
<td>41. Was SAI (Supreme Audit Institution of the country) consulted before implementing FMIS</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>42. Are there identifiable audit trails in the FMIS which could be used by the auditors</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>43. What important suggestions audit made to ensure establishment of audit trails and facilitation of audit using FMIS, indicate important suggestions:</td>
<td>Implement or develop the unique financial information system that can cover the Budgeting process as well</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44. If they were not consulted, what important issues did they raise relating to their function of audit of the accounts, indicate important issues:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Vietnam</td>
<td>Indonesia</td>
<td>MONGOLIA</td>
<td>TIMOR LESTE</td>
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</tr>
<tr>
<td>45. Do the Auditors use the FMIS to audit transactions?</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>46 Are in-year expenditure reports made available to the public through Internet or through other means?</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>46.1 Mention names of some of the reports mentioned in the above question, if the answer of above question was yes</td>
<td>Government Financial Report (audited)</td>
<td>Government financial report semester/annual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46.1 Mention names of some of the reports mentioned in the above question, if the answer of above question was yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46.1 Mention names of some of the reports mentioned in the above question, if the answer of above question was yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Is there a detailed separate Financial Management Law</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>1.1 If the answer to the above is no, is Financial Management in the country is governed by the constitutional provisions only</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>47. Is payroll integrated with the FMIS</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>48. What is the coverage of the FMIS package (Payments, budgeting, contract management, HR etc.?)</td>
<td>Payment, asset, reporting, budget</td>
<td>SA, BC, PM, CM, GR, GL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48.1 Accounts Payable module has been deployed</td>
<td>Yes</td>
<td>yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>48.2 Accounts Receivable module has been deployed</td>
<td>Yes</td>
<td>yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>48.3 Budget preparation module has been deployed</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Question</td>
<td>MONGOLIA</td>
<td>TIMOR LESTE</td>
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<td></td>
</tr>
<tr>
<td>48.4 Payroll has been deployed</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48.5 Commitment control is operational</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48.6 Contract Management is done through FMIS</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49. Any other module integrated with FMIS</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50. Is commitment of expenditure recorded in FMIS?</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51.1 Number of concurrent users of FMIS</td>
<td>More than 500</td>
<td>More than 500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51.2 Number of named users of FMIS</td>
<td>More than 500</td>
<td>More than 500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52. Nature of FMIS application</td>
<td>Web-based</td>
<td>Web-based</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53. What is the name of the FMIS application software?</td>
<td>Oracle Finance (EBS)</td>
<td>Oracle Finance (EBS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53.1 Is FMIS Commercial Off The Shelf (COTS)</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53.2 Is FMIS Custom designed and developed for this country</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54. When was the project started, mention the year</td>
<td>2009</td>
<td>2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55. Has the project been completed fully?</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55.1 If completed indicate the year of completion</td>
<td>2003</td>
<td>2003</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Revenue collections, debt management, asset management, payroll, others
procurement, assets management and bank reconciliation
<table>
<thead>
<tr>
<th>Question</th>
<th>Vietnam</th>
<th>Indonesia</th>
<th>MONGOLIA</th>
<th>TIMOR LESTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>56 partially completed. Please indicate if roughly what percentage of the work is completed</td>
<td>90%</td>
<td>90%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57. Amount spent on FMIS</td>
<td>50 Million US Dollar</td>
<td>USD 47 million</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57.1 Total Original budget</td>
<td>42 Million US Dollar</td>
<td>USD 42 million</td>
<td>30 million</td>
<td></td>
</tr>
<tr>
<td>57.2 Number of amendments issued to the original contract</td>
<td>7</td>
<td>7</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>57.3 Amount spent on FMIS so far</td>
<td>15 Million US Dollar</td>
<td>USD 8 million</td>
<td>27 mill</td>
<td></td>
</tr>
<tr>
<td>57.4 Balance to be spent</td>
<td>USD 39 million</td>
<td>3mil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>58.1 Is it over budget</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>58.2 If it is over budget, by how much amount</td>
<td>8 Million US Dollar</td>
<td>appx 5-10 million</td>
<td></td>
<td></td>
</tr>
<tr>
<td>59. Time taken in preparation of project since the conceptualisation stage</td>
<td>4 years</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60. Total Time taken in the bidding process (indicate months and years)</td>
<td>5 years</td>
<td>3 years</td>
<td>sole source</td>
<td></td>
</tr>
<tr>
<td>60.1 Stage I</td>
<td></td>
<td>2 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60.2 Stage II</td>
<td></td>
<td>1 year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60.3 Stage III</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>61. Time taken in acquiring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>61.1 Time taken in acquiring - Stage I</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>61.2 Time taken in acquiring - Stage II</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>61.3 Time taken in acquiring - Stage III</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>62. Time taken in implementation (indicate months and years)</td>
<td>not yet</td>
<td>48 months</td>
<td>2004-2005</td>
<td>2002-ongoing</td>
</tr>
<tr>
<td>Question</td>
<td>Vietnam</td>
<td>Indonesia</td>
<td>MONGOLIA</td>
<td>TIMOR LESTE</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-----------------</td>
<td>-----------------</td>
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<td>-------------</td>
</tr>
<tr>
<td>63. Different life cycle stages of the FMIS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63.1 Time taken in requirements analysis</td>
<td>1 years</td>
<td>18 months</td>
<td>1 month</td>
<td></td>
</tr>
<tr>
<td>63.2 Time taken in gap analysis</td>
<td>6 months</td>
<td>6 months</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>63.3 Time taken in system design</td>
<td>on process</td>
<td>6 months</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>63.4 Time taken in implementation/deployment</td>
<td>not yet</td>
<td>6 months</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>63.5 Time taken in testing</td>
<td>still in UAT stage</td>
<td>24 months</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>63.6 Time taken in testing user acceptance testing</td>
<td>4 months and still going</td>
<td>3 months</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>64. If project is incomplete, how much more time expected to be taken till final completion</td>
<td>6 months</td>
<td>6 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65. Is there a disaster management plan to ensure continuity of FMIS</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>66. Is there a remote data centre?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>67. Was a major disaster faced in running FMIS</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>67.1 How it was managed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>67.2 Explain the disaster, if the answer to question 67 is &quot;yes&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>67.3 How much time FMIS remained non-functional</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Vietnam</td>
<td>Indonesia</td>
<td>MONGOLIA</td>
<td>TIMOR LESTE</td>
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<td>----------</td>
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<td>-------------</td>
</tr>
</tbody>
</table>
| 67.4 Indicate important lessons learnt | - Business design should be clear  
- COTS rigid application there should be minimized customization  
- Develop and design new system more preferable (changes business process in the future will plays significant role)  
- Change management and business owner and leader commitment is important  
- Regulation and IT framework (standard data, IT blueprint, | - Top leader commitment is the most important aspect of the IFMIS successful implementation  
- Business design should be clear  
- COTS rigid application there should be minimized customization  
- Develop and design new system more preferable (changes business process in the future will plays significant role)  
- Change management and business owner and leader commitment is important  
- Regulation and IT framework (standard data, IT blueprint, | | |
<table>
<thead>
<tr>
<th>Question</th>
<th>Vietnam</th>
<th>Indonesia</th>
<th>MONGOLIA</th>
<th>TIMOR LESTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SDLC) should be in place first - Transfer knowledge and post implementation support plays important role</td>
<td>blueprint, SDLC) should be in place first - Transfer knowledge and post implementation support plays important role</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PFM reforms take place in a certain context. More specifically the pressure to adopt and implement an FMIS also develops the environment and is often contextual. There could be drivers which drive the process. These could be Government commissions, professional associations, audit institutions, standard setting bodies, consulting firms or academic communities etc.

The stimulus to change could come from Fiscal/economic crisis or financial scandal or as a result of requirement of public sector reforms in general or any other pressure in the environment.

There could be political reform promoters who spearhead the movement. They could be members of the government (ministers etc.) or could be members of the parliament.

Therefore the questions to be asked could be:

1. From where the stimulus came to adopt PFM reforms in general and FMIS in particular? It could be one or a combination of the following:
   - Fiscal stress (financial or economic crisis)
   - Requirement of other administrative reforms
   - Improvement in international standing (PEFA assessment improvements)
   - Donor pressure
   - Any other reason?

2. From where did the motivation/stimulus come for the politicians to adopt the reform agenda?
   - Academic community
   - Donors
   - Did it become political issue, if so how?
   - Any other area

3. Did PFM reform and FMIS become political issues?
   - Did it figure in the election speeches, manifestoes or any other election related debate?

4. Was Prime Minister or Finance Minister spearheading the reform process?
   - Any other leader who spearheaded the process?
PFM Reforms

- Is PFM Reform technology led?
- Is direction of FMIS and PFM reform converging
- What is the PFM reform agenda
- Where does FMIS fit in PFM reform agenda
- What is the PFM reform agenda
- How and to what extent are the Treasury and Budget Departments involved?

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>5.</td>
<td>Does Information Technology play a major role in PFM reform?</td>
</tr>
<tr>
<td></td>
<td>- In terms of expenditure of the total spend on PFM reform</td>
</tr>
<tr>
<td></td>
<td>- In terms of manpower</td>
</tr>
<tr>
<td></td>
<td>- In terms of the manner in which it affects the operations in the PFM areas</td>
</tr>
</tbody>
</table>

| 6. | Is it quantifiable in terms of percentage spent on PFM reforms? |
|   | What percentage was spent on Information Technology? What was spent on FMIS, Tax systems (ASYCUDA, other) (percentage as a total of spent on the PFM reforms so as to give an idea of the proportionality among various components) |

| 7. | Are tax systems also computerized or IT enabled/supported? |
|   | - Tax collection |
|   | - Compilation of revenue collection |
|   | - Accounting of taxes |
|   | - Online filing of returns |
|   | - Online grievance redressal |
|   | - Online registration of individuals/companies for direct taxes |

| 8. | Computerization of indirect taxes (Customs, Excise, VAT, Sales tax etc.) |

| 9. | What is the ultimate requirement of PFM reform as far as FMIS is concerned? |
|   | - Goals of the project (primary and secondary e.g. Improving efficiency, decrease delays etc.) |

| 10. | Has FMIS met the targeted PFM requirement fully? (This is only in the perception of the stake holders, they may suggest why they think why they say that the requirements have been met or not) It is essentially from the point of view of stake holders. Another way of looking at it is in terms of the objectives of the PFM reform, which might have been defined |
|     | What has been met? |
|     | What remains to be completed? |

Involvement of Leadership

- Political leadership
- Civil Servant leadership

[112]
Since it is a complex project involving a large number of actors in the Government once the decision is taken to implement an FMIS, it is necessary to identify who championed the continuance of the project. The change any large system brings about normally leads to resistance and therefore becomes a major stumbling block in taking the project further.

| 11. | Is there one or more identifiable political leader who championed the implementation of FMIS in spite of the resistance faced in the initial days? |
| 12. | Is there one or more identifiable civil servant who championed the implementation of FMIS in spite of the resistance faced in the initial days? |

Business Process Issues:
- Were changes to the existing business process from the COTS solutions large?
- How long did it take to reach consensus on the required changes to the existing process? How did it affect the duration of system implementation overall?
- Were legal changes needed to effect these changes? If they were, since it normally takes time to change laws how had this issue been handled so as to ensure continuous system implementation (interim solutions are adopted while legal changes are processed)
- Did changes to business processes also change the organisational structure of Finance/Treasury by:
  - Adding new functions;
  - Changing the business process in any way?
  - Deleting organisational units;
  - Increase or reduce staff levels;
  - Change educational/training demands on new or existing staff?
- Level of customization of the COTS to meet the existing business process and what were the determining factors for such a level of customization (unconventional budget and accounting practices)
- Did any customization adversely affect FMIS performance?
- Did the design and capacity of the FMIS also influence business processes before, during and after implementation?
- Government after-thoughts about customization requirements (are they regretting now or feeling that the customization requirements were appropriate?)

Procurement issues
- Adopting the procurement procedures of the donor agencies
- Following country-procedures for procurement
- Are there any conflicts between country procedures and donor procedures, if there are, does it result in dispute/delay in procurement
- Evaluation of different stages of the procurement process (Technical/Financial)- This is to obtain the views of the participants in the procurement process and know their comments
on both the technical and financial stages, was there something which could be done to improve it, may be for others to learn. This is specifically related to FMIS procurement.

- How the tendering for each of the phases was done (Most likely there were many phases of tendering each related to each stage of the project implementation)

Capacity issues (of Government and Vendor)

- Team compositions

<table>
<thead>
<tr>
<th>Teams</th>
<th>Government (no of persons)</th>
<th>Vendors (No of persons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steering committee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gap analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change management</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Capacity limitations at the time of starting FMIS
- Capacity limitations at the time of handling the large contract for FMIS. IT contracts being peculiar in nature, what were the major challenges faced:
  - During procurement
  - Contract Management
  - Cost – escalation
- Discovery of capacity limitations of the main vendor(s) in providing the contracted services (how the Government has handled this issue to a satisfactory outcome- insisting on changes of personnel of vendors, requiring continuity of key qualified staff of the Vendor throughout the project life).
- Did the Government team formation have serious impact on normal operations of government and how was this problem addressed?
- How the capacity has improved during implementation and later (what actions have been taken to make such improvement-(roles of IV&V consultants, additional training provided to Government core system implementation team and to end-users, transfer of knowledge from Vendor to Government team, learning by doing etc.)
- Extent of support needed now, does support rely on vendor, government or outsourcing or a combination of some or all these sources.

Change management issues

- How was it managed
- Was there a change management plan
- What issues came up and how they were resolved
- Lessons learnt from change management

| 13. Was gap in the capacity identified early in the project life cycle? |
| 14. Areas of gap: |
| • Accounting skills |
- Information Technology
- Other HR issues (salaries, incentives etc.)
- Demographic issues (age of employees)
- Work culture
- Any other

15. Was there a Change Management program?

16. If there was a change management plan, what were the main components of the change management plan? What implementation issues were faced? And how were they resolved? What, in your view, could have been done better?

17. To what extent has the capacity gap been bridged now?

18. How significant is the present gap? What measures are being taken to bridge the gap?

19. Was a separate group created to manage change process? What were:
   - Level of team members
   - Their interaction with the stakeholders and users
   - How change management plan was formulated and executed?

Internal view of the FMIS

- How does the ministry of finance view it?
- How do other ministries/agencies view it?

20. How the various wings of MOF consider the implementation of FMIS in the sense that it meets their information needs. To what extent does it meet their needs? Do they have to input data from these reports into other applications/spreadsheets to generate meaningful reports? What are the major deficiencies in the FMIS, if any? Are there some other software also in addition to FMIS which are co-existing either as legacy systems or filling the gaps created due to FMIS? If so, what is/are this software and what do they do? Are there any plans to integrate them? How?

21. How do other ministries view the FMIS for different aspects:
   - Budget preparation - development of different scenarios, stages of budget preparation, finalization of budget, approval and later availability of the budget for line functions.
   - Budget Execution – Is the payment process efficient and satisfactory? Are the employees, suppliers and vendors satisfied with the efficiency of payment? Are cash plans prepared and followed properly? How reliable are the budget balances in the FMIS to track the expenditure. What is the extent of errors in the classification etc.?
   - Reporting – Do ministries get the reports from the FMIS as...
and when they need? Can they do that themselves or do they need any intervention (form IT staff, MoF staff etc.)? Do they have to re-enter data into other software or spreadsheets to compile the reports that they need.

Maintenance and operation of the FMIS

- Can it be operated and maintained internally
- What is the level/extent of external (vendor or otherwise) support needed

22. FMIS is a complex system and once operational, it also become critical for the day to day functioning of the Government. Therefore it is necessary that proper maintenance is done so that the down-time is minimum. It requires IT-support (such as hardware, network, connectivity etc.). It also requires application support for making sure the configuration of system, its operation and load are handled properly. In addition, it requires the database support. In order to be successful all these components should function properly.

Is MOF able to operate it within its own man power and resources is the test. If it can do so it is a major achievement (please list them e.g. Hand over by vendor to MoF), degree of external support needed to resolve major issues, what was the change management needed when the vendor handed over to users.

23. If it is not able to run the application fully within its own resources. We have to identify to what extent it is depending on outside support. This could be from the IT department of the Government or Ministry of Finance or paid vendor (other than FMIS vendor).

FMIS benefits

- Claimed by vendors (list them)
  - Realized
  - Not realized

Is there any quantifiable benefit after FMIS became operational:
- Reduction in time for payment to vendors
- Realisation of revenue in the TSA (from the day it is deposited to the day it is accounted for in the Treasury)
- Better management of cash therefore savings in borrowing costs etc. (any savings on borrowings or earning on interest for surplus)
- Any other benefit
Operational Efficiency (timeliness gains in information exchange between govt. agencies; ii. information quality improvement; iii. financial gains-paper saving, debt cost reduction, TSA benefit; iv. procedure harmonization and automation)

Capacity building (gained knowledge on management of big ICT contract and large system implementation to apply to other ICT contracts and systems implementation)

- Secondary benefits
  - Transparency
  - Secondary
    - Comprehensive reports to citizens

24. To what extent benefits claimed by the vendor have been realized? >90%, 80-90%, 60-80%, <60% - why?
25. What significant benefits have been realized? Enumerate:
26. What significant benefits have not been realized? Enumerate:
27. Has FMIS helped improve transparency? In what way?
28. Level of confidence of payees – employees, vendors, grantee institutions etc.
   - Employee
   - Vendors
   - Grantees

29. Reports placed on the web:
   - Monthly
   - Quarterly
   - Annual
   - (please give details of the reports - samples)
30. Reliability and demand of those reports. Level of subsequent changes in the reports

Vendor’s views

- Implementation of FMIS involves very close interaction with the client and the vendor(s). While as a user, the views of the client are important, the views of the software vendor, system integrator or other vendors are necessary to triangulate the opinions and discover the factual reasons for deviation of various aspects from the initial promise.
- The question on this aspect could be developed around the following areas:
  - Main issues which the vendor considered were helpful in implementing FMIS
  - Main issues which vendor considered were significant hurdles, and how they overcame them in the following areas:

<table>
<thead>
<tr>
<th>Vendors views</th>
<th>Govt views</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Study (business processes, legal changes, senior management buying)</td>
<td></td>
</tr>
<tr>
<td>Requirements analysis</td>
<td></td>
</tr>
<tr>
<td>System Design and development</td>
<td></td>
</tr>
</tbody>
</table>
- Testing
- Deployment
- Training
- Testing
- Hand holding
- User acceptance testing
- Any other area

Donors view

- How donors/lenders view the success of the project
- Their concerns

31. Does the donor/lender consider FMIS a success? To what extent? >90%, 80-90%, 60-80%, <60% why?
32. Is it consistent with PFM reform strategy?
33. Significant achievements?
34. Significant shortcomings?
35. Main outstanding issues? How being addressed?

Other ICT reforms

- E-governance
- E-government
- Any other electronic reforms

36. Other ICT reforms in the country relating to e-gov:
   - IT literacy level in the government
37. Roughly what percentage of budget is being spent on ICT in the government?
38. Is there an electronic payment system in the country which is used by GMIS also to make payments?
39. Other IT based solutions:
   - Percentage of such transactions
   - Can IT or other tax returns filed electronically
   - Property taxes can be managed electronically
   - Other IT based solutions such as issue of property deeds, registration of property, filing of other applications, etc.
Interaction with the Supreme Audit Institutions

- How SAI views the FMIS
- Capacity issues with SAI for auditing transactions in FMIS
- SAI is able to audit the FMIS generated reports

| 40. | Was SAI consulted before the FMIS was installed and were the views of audit incorporated in the FMIS? |
| 41. | Are there adequate audit trails to meet SAI requirements of audit in the FMIS? |
| 42. | View of the Supreme Audit Institution whether FMIS is an improvement over the erstwhile system or not? |
| 43. | Are Financial Statements produced using FMIS for submission to audit? |
| 44. | Is audit able to access the data in FMIS to conduct its audit? |
| 45. | How capacity in the SAI was managed to match the requirements of audit of accounts through FMIS? |
| 46. | Significant areas of concern for the SAI relating to FMIS? |
| 47. | |

Post FMIS

(This may be more relevant for Mongolia, Timor Leste and maybe too early for Vietnam and Indonesia)

- Has there been any significant change in benefit expectations in the view of Govt, Donors, staff and Civil Society (list by group)?
- Is there evidence of improved budgeting, resource usage and control, cash management and disclosure?)
### Annexure –III –List of officials met

<table>
<thead>
<tr>
<th>S No</th>
<th>Name</th>
<th>Designation</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Mr. Sudarto</td>
<td>Director of Treasury Transformation</td>
<td>MOF</td>
</tr>
<tr>
<td>2.</td>
<td>Mr. Eko Sulistijo</td>
<td>Transformation (Admin) support</td>
<td>MOF</td>
</tr>
<tr>
<td>3.</td>
<td>Mr Sonny Loho</td>
<td>Inspector General</td>
<td>MOF</td>
</tr>
<tr>
<td>4.</td>
<td>Mr. Moh. Hatta</td>
<td>Head of the Electronic Procurement</td>
<td>MOF</td>
</tr>
<tr>
<td>5.</td>
<td>Mrs. Yuniar Yanuar Rasyid</td>
<td>Director of Accounting and Financial Reporting</td>
<td>MOF</td>
</tr>
<tr>
<td>6.</td>
<td>Mrs. Sri Hartati</td>
<td>Head of PUSINTEK</td>
<td>MOF</td>
</tr>
<tr>
<td>7.</td>
<td>Ms Mila V Gregorio</td>
<td>Project Management Adviser</td>
<td>MOF</td>
</tr>
<tr>
<td>8.</td>
<td>Mr. Bobby Nazief</td>
<td>Adviser on IT to the Finance Minister</td>
<td>MOF</td>
</tr>
<tr>
<td>9.</td>
<td>Mr. Rudy Widodo</td>
<td>Director Cash Management</td>
<td>MOF</td>
</tr>
<tr>
<td>10.</td>
<td>Mr. Kartika Manuaba</td>
<td>Head of the Kanwil in Bali</td>
<td>MOF</td>
</tr>
<tr>
<td>11.</td>
<td>Mr. Suryo Syoko</td>
<td>KPPN, Denpasar</td>
<td>MOF</td>
</tr>
<tr>
<td>12.</td>
<td>Mr. M Fauzan</td>
<td>KPPN, Denpasar</td>
<td>MOF</td>
</tr>
<tr>
<td>13.</td>
<td>Mr. Taj Ismail and team</td>
<td>Solution Strategy and Execution Consultant</td>
<td>Castlerock Consulting</td>
</tr>
<tr>
<td>14.</td>
<td>Mr. Maman</td>
<td>Consultant for SAKTI</td>
<td>Quadra</td>
</tr>
<tr>
<td>15.</td>
<td>Mr. Hak-Joo Choi</td>
<td>SPAN Project Manager</td>
<td>LG CNS Consulting and solutions</td>
</tr>
<tr>
<td>16.</td>
<td>Mr. Mark Won</td>
<td>Senior Manager, PMO</td>
<td>LG CNS Consulting and solutions</td>
</tr>
<tr>
<td>17.</td>
<td>Mr. George and team</td>
<td>Consultant, Change Management and Communication</td>
<td>Price Waterhouse Coopers</td>
</tr>
<tr>
<td>18.</td>
<td>Mr Hari Purnomo</td>
<td>PFM specialist</td>
<td>World Bank</td>
</tr>
<tr>
<td>19.</td>
<td>Mr. Suresh Gummalam</td>
<td>PFM Adviser</td>
<td>World Bank</td>
</tr>
<tr>
<td>20.</td>
<td>Mr. Vijay Ramachandran</td>
<td>Consultant</td>
<td>World Bank</td>
</tr>
<tr>
<td>21.</td>
<td>Mr. Jim Brumby</td>
<td>Lead Economist</td>
<td>World Bank</td>
</tr>
<tr>
<td>22.</td>
<td>Mr. Mark Ahern</td>
<td>PFM Lead Specialist</td>
<td>World Bank</td>
</tr>
<tr>
<td>23.</td>
<td>Mr. Bernard Myers</td>
<td>PSM Task Team Leader</td>
<td>World Bank</td>
</tr>
</tbody>
</table>

**Vietnam**

<table>
<thead>
<tr>
<th>S No</th>
<th>Name</th>
<th>Designation</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.</td>
<td>Mrs. Vu Thanh Huyen</td>
<td>Project Manager, PMO</td>
<td>PMO, TIU, MOF, Vietnam</td>
</tr>
<tr>
<td>25.</td>
<td>Mr. Vu Duc Chinh</td>
<td>TIU Business Process Lead, Director of State Accounting of Treasury of Vietnam</td>
<td>TIU, MOF, Vietnam</td>
</tr>
<tr>
<td>S No</td>
<td>Name</td>
<td>Designation</td>
<td>Organisation</td>
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<td>---------------------------------------------------</td>
</tr>
<tr>
<td>26.</td>
<td>Mrs. Nguyen Thi Ngoc Hieu</td>
<td>Official</td>
<td>PMO, TIU, MOF, Vietnam</td>
</tr>
<tr>
<td>27.</td>
<td>Mr. Anh Nguyen Tuan</td>
<td>TIU Take Over team Lead, Deputy director of IT Department of VST</td>
<td>TIU, MOF, Vietnam</td>
</tr>
<tr>
<td>28.</td>
<td>Mrs. Nguyen Thi Hong Thuy</td>
<td>TIU Training Team Lead, Deputy Director of the Training school of VST</td>
<td>TIU, MOF, Vietnam</td>
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<td>29.</td>
<td>Mr. Tan Chin Yeoh</td>
<td>Project Manager</td>
<td>IBM Global Business Services</td>
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<td>30.</td>
<td>Mr. Niranjan Mohanty</td>
<td>BP Lead</td>
<td>IBM Singapore Pte Ltd</td>
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<td>31.</td>
<td>Mr. Duong Dung Trieu</td>
<td>CEO</td>
<td>FPT information System (Vietnamese partner of IBM IN TABMIS Project</td>
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<td>32.</td>
<td>Mrs Dang Thi Thuy,</td>
<td>Project Director</td>
<td>Project Management Unit MOF, PFMRP</td>
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<td>33.</td>
<td>Mr. Hoang Trung Luong</td>
<td>Dy Director</td>
<td>Project Management Unit MOF, PFMRP</td>
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<td>34.</td>
<td>Mr. Dang Duc Mai</td>
<td>Director General</td>
<td>DFIS, MOF</td>
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<td>35.</td>
<td>Mr. Luu Nguyen Tri</td>
<td>Head of Software Management and Development Division</td>
<td>Department of Financial Informatics and Statistics, MOF</td>
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<td>36.</td>
<td>Mr. Duong Tien Dung</td>
<td>Deputy Chef division</td>
<td>Budget Department, MOF</td>
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<td>37.</td>
<td>Mr. Pham Van Hiep</td>
<td>Official</td>
<td>Financial Department, Ministry of Agriculture and Rural Development</td>
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<td>38.</td>
<td>Mr. Le Thanh Liem</td>
<td>Official</td>
<td>Plan Department, Ministry of Agriculture and Rural Development</td>
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<td>39.</td>
<td>Mr. Nguyen Thanh Hai</td>
<td>Deputy Division Chief</td>
<td>Investment spending division, Hung Yen Province</td>
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<td>40.</td>
<td>Mr. Nguyen Van Hai</td>
<td>Division Chief</td>
<td>financial statistics and IT division, Hung Yen Province</td>
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<td>41.</td>
<td>Mr. Nguyen The Trung</td>
<td>Division Chief</td>
<td>public expenditure management division, Hung Yen Province</td>
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<td>42.</td>
<td>Mr. Nguyen Van Bien</td>
<td>Division Chief</td>
<td>province budget management division</td>
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<td>43.</td>
<td>Mr. Nguyen Dinh Son</td>
<td>Division Chief</td>
<td>of Provincial Finance Dept's cabinet, Hung Yen Province</td>
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<td>44.</td>
<td>Mr. Le The Tinh</td>
<td>Director</td>
<td>Finance Department of</td>
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<td>45.</td>
<td>Mrs. Nguyen Thi Thanh</td>
<td>Director</td>
<td>State Treasury of Hung Yen province</td>
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<td>46.</td>
<td>Mr. Minh To Thanh</td>
<td>Chief accountant</td>
<td>State Treasury of Hung Yen province</td>
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<td>47.</td>
<td>Mr Pham Ngoc Hoa</td>
<td>Director</td>
<td>District State Treasury, Anthi District, Hung Yen</td>
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<td>48.</td>
<td>Mrs Tran Thi Huong</td>
<td>Chief Accountant</td>
<td>District State Treasury, Anthi District, Hung Yen</td>
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<td>49.</td>
<td>Mr. TAVINJIL Choijilsuren,</td>
<td>Director General,</td>
<td>Treasury Department</td>
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<td>50.</td>
<td>Ms Ariunaa</td>
<td>Treasury Director</td>
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<td>51.</td>
<td>Ms. B Otgonsetseg,</td>
<td>Director</td>
<td>PSD department</td>
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<td>52.</td>
<td>Mr Jose Brito and team</td>
<td></td>
<td>FreeBalance Inc.</td>
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<td>53.</td>
<td>Mrs. G Oyungerel</td>
<td>Project Manager</td>
<td>MOF, Mongolia</td>
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<td></td>
<td>GAP, ECTAC &amp; Multi</td>
<td>Former Project Manager for the GFMIS Project</td>
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<td>sectoral TA projects</td>
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<td>54.</td>
<td>Mr. Khuyagtsogt Ognon,</td>
<td>Director</td>
<td>Public Expenditure Division</td>
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<td>55.</td>
<td>Mr Dilgerbat,</td>
<td>IT support official</td>
<td>Treasury</td>
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<td>56.</td>
<td>Mr Erdenebat,</td>
<td>Head of the Finance and</td>
<td>in Tuv Province</td>
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<td>Treasury Department</td>
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<td>57.</td>
<td>Ms. Delgermaa</td>
<td>Chief Accountant</td>
<td>Tuv province, Mongolia</td>
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<td>58.</td>
<td>Ms. Ankhtuya,</td>
<td>Official issuing</td>
<td>Tuv Province</td>
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<td>59.</td>
<td>Mr. Bayambatsogt Yunden</td>
<td>Director</td>
<td>State Budget and Financial Department, Tuv</td>
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<td>60.</td>
<td>Mr. Oyunbaatar</td>
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<td>61.</td>
<td>Mr Erdene Badrakh</td>
<td>Official who compiles</td>
<td>Consolidation division, MOF, Mongolia</td>
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<td></td>
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<td>the final account statements like balance sheet, Income and Expenditure, change in net worth etc.</td>
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