ASSESSMENT OF GOVERNMENT PARTNER PROCUREMENT CAPABILITY AND CAPACITY, AND ASSOCIATED PROCUREMENT RISK

for proposed Health Sector assistance to the Government of Papua New Guinea involving possible procurement via partner government systems

FINAL ASSESSMENT REPORT

Presented by Charles Kendall & Partners

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ACRONYMS and ABBREVIATIONS

AusAID	Australian Agency for International Development
AMS	Area Medical Store
AP	Aid Post
APC	Authority to Pre-Commit
CKP	Charles Kendall & Partners
CPGs	Commonwealth Procurement Guidelines
CSTB	Central Supply and Tenders Board
CSSB	Commercial Services Support Branch
DPs	Development Partners
EU	European Union
FIFO	First in, First Out
FMM	Financial Management Manual
GF	Global Fund
GoPNG	Government of PNG
GPM	Good Procurement Manual
HC	Health Centre
HR	Human Resources
HSIP	Health Sector Improvement Program
HSIPMB	Health Sector Improvement Program Management Branch
IFI	International Financial Institutions
LFA	Local Fund Agent (Global Fund)
MIS	Management Information System
MSB	Medical Supplies Branch
NDoH	National Department of Health
NDRA	National Drug Regulatory Authority
NEC	National Executive Committee
PHA	Provincial Health Authority
PHO	Provincial Health Office
PhSTB	Pharmaceutical Supply and Tender Board
PFMA	Public Finance Management Act
PNG	Papua New Guinea
PSO	Procurement Specialist Organisation
PSTB	Provincial Supply and Tender Board
PIC	Pharmaceutical Inspection Convention
PwC	PricewaterhouseCoopers (LFA for GF in PNG)
QA	Quality Assurance
QCPP	Queensland Consultancy Project Partners
SSTB	Specialist Supply and Tender Board
STD	Standard Tender Document
STG	Standard Treatment Guidelines
TEC	Technical Evaluation Committee
WB	World Bank
WHO	World Health Organisation

EXECUTIVE SUMMARY

Introduction

This Report provides an examination of the national legal procurement framework and an assessment of the procurement capability and capacity of the NDoH with a view to determining the acceptability of the national system and the ability of the NDoH to rely on national systems and procedures when carrying out procurement for contracts and projects funded by AusAID and other Development Partners. Given the overall results of this Report which finds that the risks of doing so are unacceptable unless and until significant improvements are made to both the overall framework and the operations of NDoH, the Report further makes recommendations for overall system improvement and, in the interim, for mitigation and capacity development measures to be taken in order to minimise those risks whilst maintaining the envisaged levels of support to NDoH.

The assessment was carried out in several phases. An initial fact finding mission took place in May 2011 which resulted in a first draft Report. It should be stated that this initial assessment phase was seriously hampered by limited access to personnel, records, documentation and the information necessary to complete the Assessment to the required level of detail. This paucity of information was reflected in the first draft Report which did not, in consequence, provide the required level of detail. As a result, a further draft was prepared and a supplementary fact-finding mission arranged to precede the validation mission which took place over two weeks from 22 August. This Report is based on the combined results of both fact-finding missions.

Legal Framework

NDoH is subject to the national legal and regulatory framework. The main provisions of this framework are based on the concept of competitive bidding for contract values above K300,000 but the framework is incomplete and does not provide for a full range of appropriate methods and contains only a weak enforcement mechanism. This was recognised in CSTB's own 'Assessment Report using the OECD-DAC Methodology for Assessing Procurement Systems' which was finalised in October 2010. The lack of completeness is evident in the detailed provisions and in the absence of a full suite of standard tender and contract documents which thus leaves a number of critical issues unregulated or inadequately regulated. The standard tender documents that do exist at national level are in the process of being revised but this is a process that has already taken a number of years.

An attempt appears to have been made to fill these gaps through the adoption of the Good Procurement Manual (GPM) designed to assist those responsible for procurement. Unfortunately, this Manual is not fully consistent with the legal framework. There are no additional manuals at the level of the NDoH and no standard tender documents in use. In practice, the tender documents are either based on the CSTB documents which are acknowledged to be out of date or on the documents provided by donors. The documents reviewed appear mostly incomplete. Whilst problems with the legal framework are outside

the control of NDoH, the Department is nonetheless subject to it so that these problems also become obstacles at the level of implementation. However, there is evidence that compliance with the legal framework is weak, so that even its positive aspects are ignored.

In the case of pharmaceutical procurement (but not for other medical supplies or infrastructure), it appears that a specialised supply and tender board called the Pharmaceutical Supply and Tender Board (PhSTB) had been set up to oversee and facilitate the open tender method of procurement. Its mandate is broadly similar to the Provincial Supply & Tender Boards save that it is limited to pharmaceutical goods. The PhSTB ceased its activities sometime in 2010, apparently for reasons of malpractice. It is reportedly trying to re-form, a move which is being opposed by CSTB, although the whole issue of the PhSTB is shrouded in some mystery.

As a result, there are significant concerns about the legal framework itself, its implementation at the level of the NDoH and its enforcement, all compounded by the inevitably weak procurement capacity within NDoH. Whilst it is conceivable that some improvements could be made at the level of NDoH through improved specialised STDs (with the concurrence of CSTB); the production of an operational manual consistent with the legal framework which guides the NDoH through the inconsistencies of the various applicable provisions (PFMA, FMM and GPM); and the introduction of significant capacity development, the fact remains that NDoH is subject to the national framework and, until such time as that is amended to provide greater consistency with the CPG and the guidelines of other Development Partners, the NDoH will remain hampered in its ability to carry out efficient and transparent procurement.

Organisation

One of the major problems facing both NDoH and HSIP procurement and management at the present time is the extent of the structural reorganisation taking place. Whilst this makes the task of identifying the current structure very difficult, the effect of the uncertainty is extremely prejudicial to the current operations of both organisations. There are a number of reorganisations taking place simultaneously: the formation of PHAs which consist of transferring control of provincial hospitals away from NDoH to the new PHAs; the integration of former HSIPMB staff into functional areas of NDoH, leaving the procurement unit under the new CSSB; and the reorganisation of the NDoH Medical Supplies Branch to form a Medical Supplies Procurement and Distribution Unit. We were informed that a Senior Executive Management Team had been managing the reorganisation, yet no-one was able to produce an organisational diagram to illustrate what the future organisation would be like and no one seemed to know how many staff would be allocated to each function. Job Descriptions were said to exist for all posts but the HR Manager declined to permit the Team to see any without permission from the Executive Manager.

This state of flux is itself problematic for the proper functioning of the organisation but is exacerbated by the lack of staff. The procurement manager of the Medical Supplies Procurement and Distribution Unit, for example, has an almost impossible task, faced as he is with virtually no staff, (just one pharmacist advisor and one procurement officer). A similar

situation exists in what is now CSSB where the contracts manager who appears to be the most senior remaining active member of staff is reliant on donor funded consultants and faced with no applicants for the professional positions (procurement officers and architects) he is seeking to fill. The combination of uncertainty over the reorganisation and the lack of staff conspires to create a dysfunctional system. Even where staff can be found, the job descriptions are lacking and their qualification and experience levels unsure. There is no systematic training provided in the appropriate skills, although it is possible that CSTB's current training initiative through CIPS could be extended to cover any new staff. This, however, will not happen as a matter of course so that the capacity levels of the staff working within NDoH and CSSB cannot yet be said to be adequate or remediable in the immediate future without any further targeted intervention.

Even with a full and adequately trained complement of staff, they will only be able to operate efficiently where they have the necessary tools and facilities. In the case of pharmaceutical procurement particularly which is so dependent on inventory management and warehousing, the absence of any credible software to manage inventory is a serious impediment. Without an ability to manage inventory and identify end user requirements as they become needed, there is no mechanism to inform the procurement function. The current systems are simply not up to the job so that the procurement function is in effect 'running blind' with the inevitable consequences of oversupply, undersupply, late delivery of essential drugs and storage of redundant drugs which have exceeded their expiry date. This is both inefficient and costly.

Stock management is an integral part of this process. It is understood that the acquisition of a reliable stock management system has been included as a performance improvement programme in the 2011 budget. It is planned to link the Unit with area medical stores and hospitals initially. However without dramatic improvements to staffing levels and a major review of stock holdings, including the identification and disposal of date expired and damaged stock, little can be achieved.

In addition and with no regulatory system in place, the quality control of pharmaceutical products entering the country is unknown and there is no testing laboratory available in PNG. The acting manager Pharmaceutical Standards which embraces Regulatory Affairs and Standards (following the recent separation of pharmaceutical procurement and regulatory functions, formally known as the Medical Supplies Branch (MSB)), clearly understood what needed to be done to implement change but with only 5 pharmacists out of a staff level of 21, little progress is being made. Until such time as this omission is rectified, pharmaceutical goods for use within the national health system can only safely be procured from sources having stringent drug regulatory authorities as defined by WHO. The present situation is unacceptable and deprives the people of PNG of their fundamental right to health.

Operations

In terms of practical implementation, the system exhibits a series of serious shortcomings. Given possibly the absence of capacity development initiatives and the adequate tools described above, the lack of management is profound. Many managers with whom the

Team met were judged to lack the required management skills, knowledge of what was going on in their department or to have little interest. There was no sense of corporate responsibility or accountability. By way of example, consider the unacceptable state of the Badili warehouse. There is no indication that the warehouse is visited regularly or at all by senior management. Provincial or district health officers appear not to feed back to management the problems they encounter in trying to obtain serviceable stock from this warehouse. It is difficult to understand why AMS Badili had been allowed to remain in its disgraceful state without taking action to rectify the situation. In essence it boils down to lack of management; lack of responsibility and a lack of accountability. That said, a further visit to AMS Badili some 3 months later, in August 2011, evinced some pleasing improvements, although it was still far from being considered good.

Many of the problems identified by various interlocutors point to poor management and contract administration. For example, the design problems and delays in the construction of STI clinics can in many cases be traced to design issues or contract management issues which are outside the control of the procurement process itself. Nevertheless, even here a number of deficiencies in the procurement process itself have been identified which, whilst not affecting the outcome of the award procedures directly, demonstrate a lack of skill in preparing and conducting procurement procedures in accordance with the national legal framework.

However, there is a universal perception of widespread non-compliance with the applicable rules, notably allegations of corrupt and other criminal activities. Given the clandestine nature of corrupt practices, these allegations cannot be verified but the extent of the belief and the extent and detail of the anecdotal evidence provided by various interlocutors during the course of this assessment suggest that these allegations cannot simply be dismissed as fanciful. On the contrary, even the perception of corruption colours the approach of those involved in procurement, notably the officers affected by it and the tenderers involved in it.

Even where non-compliance is not the result of corrupt activities, the effect will be to undermine the fairness and efficiency of the procurement system. The files (where they exist) indicate a number of areas of non-compliance but there is no evidence that non-compliance leads to any remedial or disciplinary action. Indeed, the apparent lack of management at all levels of the administration seems to imply that non-compliance is either not known (because it is unmonitored) or ignored (deliberately or otherwise). The legal framework does not provide for any independent challenge mechanism so that instances of non-compliance are rarely remedied, the applicable rules are rarely enforced and wrongdoers are rarely disciplined. A management culture which allows non-compliance to go unchecked will not succeed in producing an efficient and economic procurement system.

Monitoring of the NDoH procurements is made more difficult by the poor record keeping practices. Many procurement and contract management files were reviewed during the assessment and not one was found to be complete. Most, to be fair, were only ‘mostly incomplete’ such that the general procurement and the stages could be identified, even if detailed compliance could not (e.g. evidence of advertisement, complete tender documents or submissions, records of tender clarifications, extensions to validity periods, tender

opening records, reasons for evaluation decisions etc.), although in some cases they barely contained any information at all. Few of the files contained documents maintained logically (by date or by issue) and most were just a series of documents placed haphazardly in the file. Thus, even if there were a culture of enforcing compliance, there is no system in place which would allow management to review and monitor progress based on the procurement files.

Overall Risk Assessment

Overall, the Team concludes that both the current government medical procurement and supply chain management systems and the formerly entitled Health Sector Improvement Programme (HSIP) procurement functions (now with CSSB) are severely limited in their capacity and capability to conduct and manage procurement and to administer the resulting contract effectively and efficiently. They require major changes to organisation, structure, procurement procedures, inventory management, warehousing, distribution and regulatory control.

As a result Development Partners (DPs) face high fiduciary and other risks. For example, money is wasted through emergency procurement from more expensive local sources, through leakage and possibly also through corrupt practices; drugs purchased with DPs' contributions are not properly stored causing an unnecessarily high scrappage rate; warehouse management at Badili is so poor that drugs are distributed with little or no remaining shelf life, resulting in the likelihood of a serious threat to the health of people if they are treated with these substandard products – a random sample of 100 items revealed that 20% were already date expired and a further 11% had less than 6 months shelf life remaining; in May 2011 a national newspaper reported that several million dollars of Global Fund money was missing – it is reasonable to conclude that this is not an isolated case and that funds provided by the DPs may also have been subject to diversion or other corrupt practices.

Required System Improvements

The very significant lack of capacity and capability within NDoH and the manifold problems relating to internal and external interference in the procurement process suggest that the ongoing problems cannot be overcome simply by a program of capacity building. The failure of the procurement and supply system is so great that in the first instance DPs would be advised to channel their funds through parallel systems as this will provide a greater assurance that their funds are being used effectively to achieve their declared purpose. In the meantime the Government has to rethink its approach on how to provide a sustainable public health system promoting health gain in the population. This will require a total reorganisation of the logistics and procurement functions and the establishment of a drug regulatory authority even though the first steps for the establishment of an efficient National Drug Regulatory Authority (NDRA) have recently been taken. This reorganisation is unlikely to be successfully achieved without technical assistance to advise on organisation and staffing levels, together with training once suitably qualified staff have been matched to

posts; however, first and foremost the many perceived accusations concerning malpractices need to be addressed. Only then can technical assistance hope to achieve a satisfactory outcome.

Risk Mitigation Measures

With respect to DPs inputs, the risks of using the national procurement system in combination with inefficient procurement function of the NDoH are neither acceptable nor manageable. Because the present procurement, warehousing and distribution arrangements are in such a very poor state, the main recommendation is that AusAID funded procurement through the NDoH procurement system should cease immediately and a more reliable procurement and supply chain management arrangement put in place.

Detailed recommendations are contained in Section 8 of this report but in summary:

- The use of the current national legal framework for procurement utilising AusAID funds cannot be recommended.
- Procurement plans should be produced annually and submitted to CSTB by 28th February. In NDoH this neither happens nor is it enforced.
- Bureaucratic procedures and delaying tactics which slow down procurement processes must be prevented; particular culprits are:
  - assembling an evaluation committee,
  - obtaining the Authority to Pre-commit (APC) from Department of Finance and
  - obtaining clearance from the State Solicitor.
- Currently prohibited under the Financial Management Manual (FMM), pre-qualification would be a valuable tool and provision should be made for its introduction for use in health sector procurement.
- An appropriate Management Information System (MIS) for inventory control should be introduced without delay.
- A functioning National Drug Regulatory Authority (NDRA) is required for registering and controlling the quality of imported drugs.
- Managers must take ownership of logistic functional areas and ensure staff in those areas are aware of their responsibilities and accountability.

In the light of the unacceptable state of procurement and supply management functions currently prevailing in NDoH, it is recommended that no further procurement financed from AusAID funds should be undertaken by NDoH until a viable and sustainable system is built within NDoH or achieved by NDoH through outsourcing.

The only realistic option available to mitigate AusAID's fiduciary risk and to ensure efficient procurement and supply management for health and non-health products financed through AusAID in the short term to medium term is to use an external service provider specialising in procurement and supply chain management.

Capacity Development Measures

The Team's recommendation is that a programme of procurement capacity building should not be initiated at present because of the many problems highlighted in this Assessment, notably the current uncertainty over the responsible organisations, the staffing levels and current skills capacity; the culture of (accepted) non-compliance and the perception of significant corruption and interference. In such circumstances, it is doubtful that a capacity building Programme could be effective or sustainable.

Nevertheless, we also provide some recommendations for capacity building efforts to be implemented when the time is right which might offer a longer term solution to the difficulties encountered in PNG. A Capacity Development Plan is provided separately which, in essence, provides two alternatives, the second being modular:

- Full capacity development plan. In this option a team would work alongside NDoH staff mentoring them in all aspects of supply management; procurement, inventory management, warehousing and distribution.
- Targeted capacity development plan. In this option each part of the supply chain would be considered individually; for example, NDoH may wish to outsource warehousing and distribution such that these need not be further considered, concentrating only on procurement and inventory management.

Before either of these options can be considered, NDoH will need to recruit and retain suitable staff to work alongside the mentors and thus benefit the Department by providing a retained capability for the future.

Supplemental Note on Access to Data**:** *One serious impediment encountered to the collection of comprehensive fact finding was the limited access to data achieved. The Team was on several occasions faced with statement to the effect that files were locked and that the key holders were absent or could not be found. Given the short window of opportunity to inspect files, notably outside Port Moresby, such files were not inspected. There is no reason to suppose that these files were in any better condition than those actually seen but it is to be noted nonetheless that the statements and opinions contained in this Report are based on a smaller than optimal sample of procurement files.*

SECTION 1 LEGAL ASPECTS AND TRANSPARENCY

A1 - GENERAL FEATURES

National Framework

Public procurement in the health sector is governed by the same legal framework as all other government departments in PNG at the central and provincial level.

The procurement legal framework in PNG consists of 2 main elements:

(i) Part VII of the Public Finances (Management) Act 1995 (PFMA), as amended, and

(ii) Parts 11-15 of the Financial Management Manual 2005 (FMM, which is part of Financial Instruction 1/2005, adopted under the PFMA).

These may be termed the "legal" or "legislative" framework since they consist of legally enforceable provisions of law. They are accompanied by a Good Procurement Manual ('GPM'), also adopted in 2005 which essentially provides interpretative guidance. In practice, one of the difficulties with the GPM is that, while it provides useful information on many procurement issues, that guidance is not always referable to the PFMA or FMM. The information relates primarily to other procurement systems [notably the Guidelines of International Financial Institutions (IFI)] and has been imported into the GPM with cosmetic changes. As guidance this may be helpful to some extent but many of the issues described there have no basis in the legal framework. This means that there is some inconsistency which leads to confusion in practice. It is to be remembered that this is the situation for all government departments and that any improvements would need to be made at a national level and not only in the context of the health sector.

Currently, there are no mandatory national level Standard Tender Documents ('STDs') applied by procuring entities although the CSTB website does provide a set of voluntary STDs for Goods, Works (for very small, minor and major Works) and Services (Supply Services and Consultancy Services). The website also refers to a supply and installation STD although there is no document available to download from the website. Whilst these STDs bear a striking similarity to the equivalent documents of the Multinational Development Banks in many respects, they have also been modified to reflect the legal and regulatory framework of PNG. They are thus not suitable for use where donor funds are employed and CSTB has itself advised that they should not be used. NDoH has produced its own STDs for Goods and Services; however documents reviewed by the Team confirmed the need for improvement in areas such as:

- Specifications which were either not generic or lacked sufficient detail,
- Evaluation criteria which were inappropriate or ambiguous,
- Essential topics missing from Terms and Conditions such as payment details, disputes procedures, default to name but a few.

The GPM provides some general and sometimes vague guidance on the desired content of STDs (in many cases not reflected in the PFMA or FMM).

The lack of a mandatory set of STDs compliant with the legal framework and satisfactory to the CSTB (their review of the current documentation suggests that they are not satisfied with the existing documents and this is, indeed, what they say) means that the national framework is not yet complete and will only become fully operational when the new STDs proposed by CSTB are finally adopted and implemented. From the perspective of legal certainty and to ease implementation of the procurement system, it is critical that the various legal documents (PFMA and FMM) and supporting instruments (GPM and all applicable STDs including those prepared by the NDoH) are consistent and based on the same framework. This will remove confusion as an excuse for non-compliance. Following the roll-out of the new STDs, the GPM and other documents would need to be up-dated. Again, this is a national level requirement and not one specific to the health sector.

As the national legal framework currently stands (i.e. without the benefit of mandatory STDs), we can say that, to the extent that it covers the same ground (i.e. where the legal framework covers a procedure also covered by the Commonwealth Procurement Guidelines (CPGs) and WB Guidelines, as in the case of "public tender"), it is not wholly inconsistent with the CPGs in the sense that the general principles and procedures are applied in a similar way. This finding applies to all government procurement, including that of NDoH. Even so, the framework remains deficient because it is not complete: it does not provide for the full range of procurement methods which will be needed in the appropriate circumstances, notably in the case of the health sector, for example, a suitably defined procedure for the award of framework contracts (allowing for annual bulk purchases of pharmaceuticals, for instance) and it contains no *national* procedures for the selection of consultants. The GPM refers explicitly to the use of the WB Consultant Manual for the procurement of consultant services but, since the PFMA prohibits the use of prequalification and shortlists and otherwise mandates inconsistent methodologies for evaluation, this is probably an unworkable requirement for any but the most experienced procurement officers. The STD for Consultancy Services provided on the CSTB website replicates the WB guidelines for the most part but removes (inevitably) the shortlisting procedures and replaces them with general system of eligibility and qualification.

Even if the general principles for public tender and the Request for Quotations procedure are broadly consistent, there are, nonetheless, some notable deficiencies both because the legal framework is not complete and because, in respect of some of the detailed provisions, the legal framework takes a different approach. AusAID in Port Moresby kindly provided the assessment team with an extract of a draft report commissioned by the European Commission ("EU Draft PFM Report"). It appears to be a PFM based report and so the procurement related aspects of the review are necessarily limited and selective. Nevertheless, the extract provided does, at the level of the legal framework, confirm the findings that the choice of available procurement methods is too limited and that consultancy services are to be governed by the WB guidelines.

The findings of this assessment are generally consistent with the findings of the CSTB commissioned "PNG Procurement Assessment Report using the OECD-DAC Methodology for Assessing Procurement Systems" finalised in October 2010 which also provides suggestions as to the amendments which might be necessary to the national framework in order to align it closer to the OECD-DAC indicators. It is further understood that efforts are currently being made at the initiative of the Government of PNG (GoPNG) to review the overarching legal framework.

Without seeking to pre-empt the form that such proposed amendments may eventually take (amended PFMA, new Law, Regulations etc.), this assessment identifies below a list of significant deficiencies which would need to be taken into account in any amendment or improvement in the national framework. We are convinced that some amendments to the legal framework will be needed.

The identified deficiencies are largely common for both the CPGs and the WB Guidelines (Guidelines of January 2001, which formed the basis of the comparison contained in Section 11.6).The issues we believe need to be taken into account in improving the legal framework are set out in Section 11.4.

In summary, they are:

i. the absence of a full range of methods in appropriate circumstances and based on strict conditions of use, including the current prohibition on selected tendering (i.e. with pre-qualification) and the introduction of framework agreements;

ii. the absence of an appropriate procedure for consulting services;

iii. uncertainty over the term "relevant international media";

iv. the need for time limits to be appropriate for the procurement in question and for extensions where necessary;

v. the inadequately detailed qualification criteria appropriate for different types of contract;

vi. the failure to require the use of neutral and non-discriminatory specifications, including the exceptions such as use of brand names only when there is no reasonable alternative and provided that equivalence is required;

vii. the imprecise evaluation criteria;

viii. the lack of basis or authority for the application of domestic preferences and the means of applying them;

ix. the lack of debriefing;

x. the failure to set a time period for the publication of contract award notices;

xi. the ineffective enforcement/complaint review mechanisms;

xii. the absence of mandatory STDs which means that, at the national level, there are a number of significant issues which are either not regulated at all or regulated incompletely such as bid validity, bid securities, pricing and price adjustments, insurance, currency provisions for bidding and payment purposes, performance securities, liquidated damages. These deficiencies are currently palliated, but not remedied, through reliance on NDoH STDs, but this is a question of *practice* and not one of the applicable national *legal* framework.

Apart from these deficiencies, there are several features of the framework which militate against a finding that the system currently provides a sound basis for efficient or effective procurement leading to reliable procurement outcomes.

These are, in summary:

i. PFMA, FMM and GPM are not entirely consistent;

ii. the absence of a legal requirement to carry out procurement planning (as opposed to a recommendation in the GPM);

iii. insufficient requirement for the keeping and maintenance of records;

iv. no provisions for contract packaging, aggregation of demand, bulk purchasing and framework (panel) contracts;

v. the informal and opaque method of establishing preferred supplier lists;

vi. the desirability of (re-)operationalising the CSTB website to at least offer on-line advertising and contract award notices.

A2 – BASIS FOR TRANSPARENCY

There is a requirement for all contracts with a value above K300.000 to be awarded by public tender using the CSTB which will advertise the procurement in national and, where appropriate, international media. A Special Supply and Tender Board (SSTB), known as the Pharmaceutical Supply and Tender Board (PhSTB) is established under the FMM for the procurement of pharmaceuticals but enquiries indicate that such PhSTB is not currently *operational*. There is no amendment to the FMM so it continues to exist as a statutory body in principle but its members have been relieved of their positions. It has been suggested that the PhSTB was disbanded following alleged corruption but that moves are afoot to re-establish it. It is understood that the Chairman of CSTB has written to the Minister to prevent such course of events. The fact that contracts above a value of K 300,000 are carried out by the CSTB appears to confirm this situation since, otherwise, it is the PhSTB that would have jurisdiction. It should be mentioned that the threshold for PhSTB involvement had been increased to K.5m (in the same way that it has been increased to K3m for the PSTBs) and it has been suggested that there was objection to this higher authority.

Other than the deficiencies mentioned under A1 above, this CSTB procedure is fairly robust and provides for appropriate bid opening procedures and time frames. Post-tender negotiations are prohibited in the GPM but not by the legal framework itself and there is evidence to suggest that negotiations are sometimes used in practice.

The legal framework offers only a limited choice of procurement methods but the conditions for their use are clearly established and public tender is the mandatory method for all contracts valued at more than K300,000. The COI method is comparable to a negotiated procedure but is used only in emergency situations. Once approval is obtained, however, the procedure is neither described nor transparent and there are no means of assessing its fairness. The limited number of methods is a serious impediment since the availability of a greater number of methods may be useful in given circumstances. Selective procedures (using some form of pre-qualification) are specifically prohibited by the FMM, thus depriving procuring entities of a valuable procedure, especially in cases of technical complexity (e.g. high-end medical equipment). The EU Draft PFM Report indicates, however, that pres-selection is used in practice in some sectors, though no example is provided by them in the health sector.

Whilst it is difficult to make an overall statement on compliance due to the poor record keeping, the anecdotal evidence provided suggests that non compliance is widespread and that there is no enforcement of compliance. This appears to be the result of a management culture which does not seek to enforce compliance. The poor record keeping means that many instances of non-compliance will not be discovered (which is possibly why record keeping is so poor). However, there is no evidence to suggest that cases of non-compliance have been identified and dealt with appropriately within the organisation itself. As indicated in section 1 above, the legal framework does not provide for any independent challenge mechanism so that there is no mechanism for instances of non-compliance to be remedied.

The time limits for submission of bids are barely adequate but the lack of completeness of the legal framework and absence of STDs means that procedural issues such as provisions on bid and contract securities are unclear. The files reviewed to do not provide any additional information from which to draw more precise conclusions.

The qualification criteria stated in the national framework are acceptable but only broadly defined so it may not be possible for procurement officers to apply them appropriately in practice. The general requirements are indeed set out broadly but, as evidenced by the files reviewed, the qualification criteria are not always clearly stated in the finalised STDs and even minimum qualification requirements are sometimes missing. Evaluation criteria are equally unclear and often unrealistic which opens the door to manipulation. The FMM and GPM describe the evaluation process in different terms so the applicable criteria are not always clear. The EU Draft PFM Report makes the point that qualification and evaluation criteria were included in some of the files reviewed in the education sector but makes no comment on the adequacy of such criteria.

CSTB publishes an Annual Report which contains general summaries of procurement over the year but NDoH does not publish such information in respect of health related procurement. Poor record keeping would also make this difficult in practice. Despite the checks and balances set out in the legal framework and the GPM, the approval mechanisms and low level of authority of various officers mean that there is room for interference by government officials. For example, the EU Draft PFM Report identifies a procurement being rushed through by a Provincial Supply and Tender Board on the recommendation of the Member of Parliament (MP) despite only one quotation, which had been addressed directly to the MP, being provided. There is ample anecdotal evidence to suggest that events similar to this occur quite frequently.

SECTION 2 – PROCUREMENT CYCLE MANAGEMENT

B 1 - PROCUREMENT PLANNING

Chapter 1 of the GoPNG GPM states that annual procurement plans should be prepared and states broadly what they should contain. The GPM also states that acquisition plans should also be prepared and submitted to CSTB with the bidding documents describing how needs analysis, development of specifications etc. was done. Within the NDoH there is no annual procurement plan prepared and procurement is carried out very much on an *ad hoc* basis. There are no acquisition plans either. Due to lack of capacity, MIS and ineffective communications the vertical programmes do not have the required information such as specification, quantification, identification of recipients and in some cases information on budget allocations available in a timely fashion.

In the case of pharmaceutical procurement, for example, there is evidence to suggest that, rather than conduct annual planning to meet anticipated requirements, contracts have been written in such a way as to permit extensions of contract for up to 2 years duration. The Manager Procurement & Distribution Unit has now limited the period of extension to 1 year. The lack of inventory management makes planning very difficult in terms of identifying the quantities required. Lack of planning is thus closely related to a lack of inventory management, an issue which is addressed in more detail in section 3.

Even in the case of procurement not related to pharmaceuticals, there is no evidence that plans are prepared on an annual basis or at all. The EU Draft PFM Report confirms that lack of planning is a widespread issue, noting that they did not observe separate procurement plans as part of the annual budget preparation or related to the quarterly activity plans in any of the sectors they considered.

B 2 - PROCUREMENT CYCLE

There is no concept of Procurement Cycle Management. The typical cycle described in the GPM is not even followed, and each step of the procurement process is dealt with separately. Whereas the requirement to involve CSTB, State Solicitor and National Executive Council (NEC) is an integral part of the system aimed at ensuring quality as well as checks and balances, the various steps involved to obtain approvals are time consuming. Furthermore, anecdotal evidence suggests that tactics are applied to deliberately delay the process to serve hidden agendas.

Time lines were investigated for 3 tenders which went through CSTB. The first, for stationery, started in August 2009 and the contract was not awarded until February 2010. This is far too long for what should have been a routine and straightforward procurement. The time lines were as follows:

Advertisement states documents available from 17 Aug 09

Tender closes	7 Sep 09
Evaluation	2 Oct 09
Sent to CSTB	5 Oct 09
Agreed by CSTB subject to legal clearance	17 Oct 09
Approved by Board	21 Oct 09
APC	15 Dec 09
Letter to State Solicitor	21 Dec 09
Approved by State Solicitor	28 Jan 10
Contract signed	2 Feb 10

The second tender, which was for Sterilizers, took even longer, starting in Sep 2009 and reaching contract 14 months later in Nov 2010. The major areas of delay appear to have been in assembling an evaluation team to meet, obtaining the APC and obtaining the sign - off from the State Solicitor. The third tender for pharmaceutical and medical supplies, started in October 2008 and was finalised in September 2009.

Issues of delaying tactics also arise in the case of infrastructure procurement. Where above threshold contracts are let, however, there appears to be dissatisfaction with the role played by the CSTB. This is seen more as an obstacle than as facilitation. Clearly the need to refer to the CSTB causes some delay, although this is not considered to be excessive in most cases since the Board meets on a weekly basis. Where delay does become a problem, however, is in those cases where the CSTB does not approve the recommendation of the technical evaluation committee (TEC). The problem here, from the point of view of the procuring entity, is that a decision not to follow the recommendation of the TEC and to award the contract to another of the tenderers is (apparently) never motivated. No reasons are given for the choice and it is believed (rightly or wrongly) that such decisions are based on reasons of personal interest. This belief is supported by the fact that most problems of under or non-performance by contractors occur where it is the CSTB that has made its own award decision.

From the perspective of the legal framework, the requirement for the TEC to provide a ranking of the tenderers to the CSTB does, in practice, allow them to make a choice between a number of ‘qualified’ tenderers, but their ability to override the TEC’s recommendation without the need to provide reasons for doing so (which might be challenged) lays the system open to abuse. Whether the system is, in fact, abused is not something the assessment team has been able to ascertain but there is certainly a perception that it has been abused.

B 3 - BIDDING DOCUMENTS

There are at present no approved national STDs. NDoH has its own standard documents for Goods and Services but these do not either appear to be satisfactory or used correctly. Whilst there have been serious problems in accessing files, those that have been seen exhibit significant deficiencies. The Invitations to Tender documents reviewed clearly confirmed the

need for improvement e.g. there are no standard specifications and the evaluation criteria used are ambiguous, confirming the comments on the legal framework.

The appointment of an AusAID funded consultant as an in-line Procurement Manager for Medical Supplies and Distribution Unit has resulted in some improvements such as:

- Redefining of evaluation criteria
- Making GMP and CPP certification from countries with stringent NDRA mandatory for suppliers of pharmaceutical products.
- Standardising bidding documents for pharmaceutical goods and services.
- Requirement for samples and packaging specifications.
- Security marking goods “Government of PNG, Not for Resale”.

In the case of the STI Clinic construction project, the files contain a Probity Audit Report (PAR) dated 14 August 2007 which audited the tender documents of the STICCP and this identified a number of deficiencies in respect of the national legal framework. These deficiencies included apparent inconsistency between design requirements and tender documents (on the geographical location of the clinics); lack of clarity on the acceptability of ‘alternative’ designs (seemingly permitted but actually impossible given that the choice had already been made) resulting in several instances of (unfair) non-compliance; imprecise tender submission date leading to (understandable) late submission; no register of tender opening; no record of addenda to the tender documents whereas there was at least one addendum; imprecision of requirements leading to confusion over the completion of the schedules of rates.

In addition, it appears that the tender submissions were also rather patchy and that some of the weaknesses were the result of deficiencies in the tender documents. Apart from further issues relating to the schedules of rates, this was mainly in relation to qualification criteria and it has already been noted in respect of the legal framework that the lack of clarity and guidance in this respect is likely to lead to confusion in practice. This appears to be borne out here. The evaluation process is described in the evaluation reports sent to CSTB but it is not clear from the face of the reports how the evaluation matches the announced criteria. There is, of course, no additional record in the file to demonstrate the process.

Despite the absence of an independent review mechanism, the Team did come across a positive example of where the bidders were able to identify and then force a change in defective bidding documents. It concerned the procurement of sterilizers. In the file studied at CSTB the original specification had clearly been drafted by one of the firms who was bidding and reflected some of their design particulars e.g. a left side hinged door was specified. This raised queries from other suppliers and an Addendum had to be issued to make the specification more generic.

At a more general level, NDoH conditions of contract documents need to be improved; there are some important clauses missing such as:

- Terms of payment

- Dispute resolution
- Force majeure
- Termination
- Notices
- Applicable law

B 4 - PRE-QUALIFICATION

Pre-qualification is not applied and is, in any event, specifically prohibited by the FMM (but not the PFMA). It is clearly widely used in some sectors, however, as documented by the EU Draft PFM Report (section 1, A-2 above). Procurement of pharmaceutical supplies seems not to have been effectively organised in recent years and much of the procurement has been on a hand-to-mouth basis having determined who can supply with the least lead time. There has thus not even been an attempt in practice to rationalise and streamline the procurement process.

Very recently, Manager Medical Supplies Procurement & Distribution Unit has introduced a policy of ordering pharmaceutical goods only from GMP and CPP certified suppliers. Until such time as pharmaceutical regulatory controls are introduced, this will ensure the quality and efficacy of the imported drugs but, until pre-qualification is formally permitted within the legal framework, this is effectively contrary to the prevailing legal provisions since it limits eligibility in a selective way.

Pre-qualification would not work successfully for drugs in the absence an efficient NDRA. However it may serve a useful purpose for common use goods such as stationery and other standard procurement.

B5. - COMMUNICATIONS BETWEEN BIDDERS AND THE PROCURING ENTITY

Pre-bid conferences do take place but records of written communications with bidders are usually absent from the procurement files and may not exist. As stated by NDoH, there are no communications during bidding processes other than for clarifications done in writing and no such other communications could be detected when reviewing selected case files. No records of questions from bidders and answers given were found. In some interviews, however, concerns were raised with regard to unrecorded and clandestine communications with the consequent leakage of information threatening the probity of the bidding process.

The existence of incomplete files (see section 5) showing half the correspondence indicates that not all communications are properly recorded. As a result, it is not possible to conclude whether communications are properly handled because there is no record. Given the generally incomplete state of the files reviewed (some of which contained responses to requests for extension of bid validity but not the request, for example), the absence of records may simply be an omission and cannot be assumed to indicate the absence of communications (handled properly or otherwise).

B6 - RECEIPT OF BIDS AND OPENING

For major procurements, K 300.000 and above, bids are submitted to CSTB where they are kept in a securely locked tender box. Three keys are required to unlock the box. CSTB conducts public bid openings, which are usually attended by bidders and representatives of the procuring entity. Bid openings are conducted immediately following the deadline for submission. The bid opening procedures are satisfactory. Information is read out (bidder, bid prices, bid securities).

Bid Opening Records appear to be kept, signed and distributed to the attendants although the records reviewed did not contain sufficient detail. Nevertheless, copies of letters sent to the procuring entity and seen by the Team do not appear to provide complete details of the bid opening and did not contain any copy of the 'register' of bid opening.

At the provincial level on the other hand, no record was found to substantiate the processes applied to the receipt and opening of bids.

B 7 - BID EXAMINATION AND EVALUATION

There are no detailed procedures stipulated in the GPM on how evaluations should be carried out. There is no pre-approved list of Tender Evaluation Committee (TEC) members. It is also not clear if, for example, the TEC may involve qualified "external" experts to assist in the evaluation. In consequence, evaluation procedures are left to the discretion of the procuring entity and, in the case of NDoH, no detailed written procedures have yet been developed to fill this gap and to guide the evaluation process. Furthermore, considerable delays are experienced in completing evaluations because TEC members are frequently out of office.

This does not mean, however, that it is always done badly. In the case of the procurement of sterilisers, for example, the evaluation was well documented and an appropriately qualified team had been appointed to undertake the evaluation. The tender opening was less well documented but overall the file was adequate.

The vague evaluation criteria of the legal framework appear to have been closely applied in practice. From the case files reviewed, it is apparent that inappropriate evaluation criteria are selected and that scoring percentages are applied for the evaluation of goods. Where goods meet the required specification, the lowest priced bid that can deliver on time should be selected but a tender for the provision of stationery used the following evaluation criteria:

Experience in similar industry	30%
Assets to support e.g. warehouse	10%
Value for money, capacity and financial suitability	60%

These are inappropriate *evaluation* criteria even if some of them may be applied for technical qualification purposes. Mandatory requirements for the submission of certain documents, samples and information are also often confusingly included with evaluation criteria. Vague

criteria lead to inconsistencies in bids being accepted or rejected, with the inherent opportunities for fraudulent evaluation and award.

Similarly, in the case of pharmaceutical procurement, the evaluation criteria are vague and subjective, although this may not be surprising given the lack of quality assurance measures in respect of imported products. A certain degree of flexibility may be necessary in practice to deal with varying quality levels.

B8 - CONTRACT AWARD AND EFFECTIVENESS

Generally, contracts are to be awarded to the lowest responsive bidder. However, the legal framework mandates the CSTB as follows: “In examining a tender, the Board shall give consideration to the capacity, experience, integrity, financial status and past performance of the tenderer and such other matters as it thinks relevant” (FMA, Section 42 (5)). Where two or more tenders appear satisfactory, and in the opinion of the Board there is no advantage to the State in preferring a particular satisfactory tender, the Board or the Minister can decide to divide the acceptance between two or more satisfactory bidders and in any such case the reasons for the acceptance need to be detailed. (FMA, Section 42 (10)). This clause does not comply with internationally accepted standards. However, in the case files reviewed, it was not applied.

Contracts above K 300,000 require approval/execution by CSTB and contracts above K 10 million require approval by NEC and execution by the Governor General. There is also a two-stage approval process required involving the State Solicitor. For procurement below K 300.000 contracts are submitted to the Secretary of Health for signature. However, obtaining the necessary approvals adds significantly to the delays in the process and it is not unusual for relatively straightforward tenders to take 14 months from start to contract placing.

Anecdotal evidence suggests that contract decisions are unfairly influenced (see also section 2, B-2 above). Once award is made and anomalies are subsequently discovered the system rarely allows a remedy.

B9 - CONTRACT ADMINISTRATION

Contract Administration is effectively non-existent. It appears that nobody feels responsible and accountable and no one is officially delegated. There is no monitoring and evaluation of the procurement process. The lack of proper contract administration also appears to have a serious negative impact on the perception of the procurement function overall.

In the context of the STICCP, for example, there have been serious shortcomings with the phase 2 construction, mostly blamed on procurement, although many of these are clearly design or implementation problems, rather than problems with the procurement processes themselves. The numerous reviews made available to the assessment team of the various phases of the STICCP indicate a number of issues such as, for example, the incorrect positioning of one of the clinics (at Daru), the lack of information and education materials provided at the clinics, delays related to a dispute with the Internal Revenue Commission

(IRC), as well as a series of other non-specific delays. The positioning of the clinic is a question for the 'client', in this case NDoH and the hospital concerned, the lack of documentary materials is an issue of implementation, the dispute with the IRC is unrelated to the procurement processes but may be the result of the overall design of the project. Other delays are attributed by the CSSB to site conditions and to the need to transport the prefabricated elements to the site. Whilst there have thus been a number of problems in the implementation of the STICCP, it is thus far from clear that these can all be laid at the door of those responsible for the procurement.

In common with all departments, some of the biggest challenges for implementation are logistical and based on the geography and infrastructure (or lack of infrastructure) in PNG. Issues of accessibility, site conditions, transport, the effect of landslides and security all play a significant role in the success of any implementation. These are issues which are largely out of the control of those responsible for procurement, although these issues should also be explicitly foreseen both in the specifications and tender documents and should be required to be addressed as a matter of course by tenderers in their submissions. It is not at all clear that this is done adequately so that successful implementation of projects may well be undermined from the outset. Certainly, the frequency of delay and variations which appear on the face of files due to these various issues suggests that they have not been properly taken into account. This points to a defect in the design of the projects, however, rather than in the procurement process itself.

Similar contract administration issues have arisen in the case of the Heduru clinic extension. This concerns an extension of a value of K 330,000 to an established STI Clinic situated on the grounds of the Port Moresby General Hospital. A managing contractor was procured by the HSIPMB to assist it in designing the new two level building, to be linked via walkway to the previous clinic. This managing contractor will also arrange the civil works contract for construction of the new clinic.

Payments to suppliers are not made on time and suppliers resort to contacting NDoH to hasten payments. Some suppliers require and receive payment up-front without advance payment guarantees being provided. Likewise, performance guarantees are either not requested or not provided and in cases where they are specified the percentage of the contract value represented by the guarantee is very low, e.g. 2½%. It was even suggested that delays in payment are deliberate and used to facilitate private arrangements. This is a classic form of extortion on the part of government officials.

A final issue that should be noted is that NDoH has no satisfactory dispute resolution process with an escalation route. This is not dealt with properly by the existing STDs and NDoH has not sought to remedy this *lacuna*. It is understood that, in practice, any dispute is passed directly to the NDoH lawyer and disputes are usually settled in Court.

B 10 – PHARMACEUTICALS PROCUREMENT

Under the present structure, there is no Quality Assurance (QA) system in place to ensure the efficacy and safety of procured products. However, major steps are being undertaken to

review these issues such as the revision of the Pharmaceutical and Dental Catalogue 2002, Standard Treatment Guidelines (STG) and basic steps towards enforcing regulatory compliance. The new Procurement & Distribution Unit policy has changed regarding the QA issues and new requirements have been introduced by requesting the manufacturers to ensure that their manufacturing licence should originate from an acceptable Drug Regulatory Authority.(i.e. WHO prequalified, EU or Pharmaceutical Inspection Convention (PIC) countries approved)

Following a division of functions recommended in 2007, procurement of pharmaceuticals is carried out by the Medical Supplies Procurement and Distribution Unit. The Pharmaceutical Services Unit within NDoH is to provide regulatory and technical pharmaceutical support to the procurement function but appears to be not yet fully operational.

TEC would normally consist of procurement specialists, pharmacists and Medical University representatives; when needed other specialists are also involved. The WHO PNG Office Pharmaceutical Officer is normally present at the committee meetings.

SECTION 3 ORGANISATION AND FUNCTIONS

Under this assessment we are essentially concerned with two levels of procurement: first, procurement by the NDoH itself using NDoH structures and national procedures which largely concerns the procurement of pharmaceuticals and medical supplies and, second, procurement by the Health Sector Improvement Programme (HSIP), an AusAID funded trust account which, although it includes a small component for the procurement of medical supplies, is largely concerned with medical equipment and infrastructure procurement.

In this respect, there is an overriding organisational concern. The operational structure of both NDoH and the HSIP is currently in transition and the final structure is not yet fully in place. This state of flux makes assessing the capacity of the organisation difficult and requires a practical and functional separation to be made of the various parts of the NDoH organisation which are responsible for different types of procurement. As a result, procurement by NDoH and under HSIP will be considered separately below.

In brief, following a division of functions recommended in 2007 by the Ministerial Taskforce on reforming Medical Supplies, the former Medical Supplies Branch was split into two units; the Medical Supplies Procurement and Distribution Unit and the Pharmaceutical Services Unit. This latter unit is to form a National Drug Regulatory Authority and to provide regulatory and technical pharmaceutical support to the procurement function but with a staff of 5 against a requirement for 21 it is not yet fully operational. This is discussed in more detail in section 3.1.

The procurement of non-medical supplies funded under the HSIP Trust Account has until recently been the responsibility of HSIPMB. This was spearheaded by a Director who managed projects and programs, finance, administration and procurement functions. During 2009/10, in part to overcome chronic staff shortages, there was a move to integrate all but the former HSIP procurement functions into mainstream NDoH branches, e.g. finance was absorbed into Finance and Administration, projects and Programmes were absorbed by Planning. Whilst funding continues to be managed centrally, the remaining procurement functions are now carried out by the newly named Commercial Services Support Branch (CSSB), headed by a manager whose function is to manage major and minor project and Programme procurement. This is discussed in more detail in section 3.2.

To complete the picture, we also consider in section 3.3 below, the state and role of private sector organisations, notably in the provision of warehousing. This is an important element of the assessment since, given the state of public sector warehousing described in section 3.1 below, the availability of alternative solutions will become crucial when considering the recommendations made.

3.1 Procurement by NDoH

Whilst the procurement of pharmaceuticals in NDoH is largely a centralised function carried out by the Medical Supplies Procurement and Distribution Unit, the nature of pharmaceuticals procurement means that warehousing and distribution, as key elements of the logistical

process, is a cooperative effort between the Medical Supplies Procurement and Distribution Unit and a number of other organisations, notably those responsible for maintaining and stocking the warehouses and the Provinces (and Provincial Health Authorities (PHAs) where they exist) and health facilities who are responsible for managing orders.

For ease of reference, therefore, this section will first consider the overarching issues in functional terms, including the central role of the Medical Supplies Procurement and Distribution Unit. It will then consider the various organisations involved at the sub-central level, notably the warehouses and the PHAs.

3.1.1 Main Organisational Functions

Following the recommendations of the Ministerial Taskforce on reforming Medical Supplies (2007), procurement of medical supplies within NDoH is currently organised as follows: the NDoH Medical Supplies Branch has been split into two units; namely Medical Supplies Procurement and Distribution Unit and Pharmaceutical Services Unit, the latter providing quality control guidance for procurement and forming the basis of the proposed organisation for regulatory control of pharmaceutical goods.

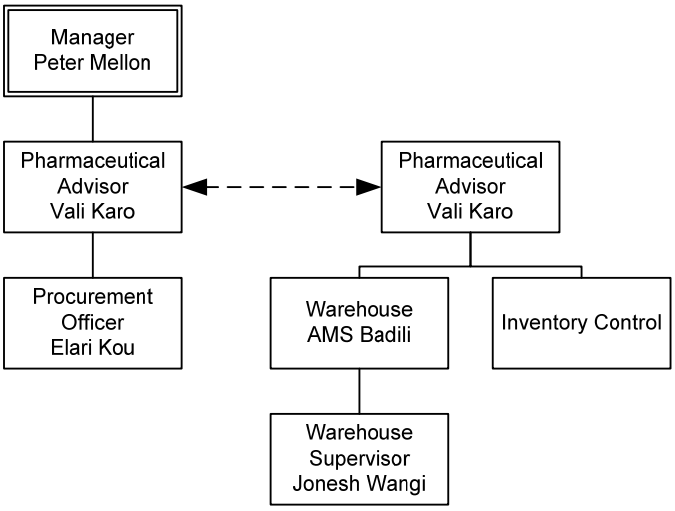
The Taskforce also recommended that the 6 Area Medical Stores should be reduced to 3, namely Badili, Mount Hagen and Lae and this in effect has happened. The remaining former Area Medical Stores are to become Transit stores.

Inventory Management would appear to have been neglected as far as staffing is concerned, although it is understood that budgetary provision to cover part of the costs for an inventory management system was included in the latest Global Fund funding round for PNG.

Medical Supplies Procurement and Distribution Unit

The Medical Supplies Procurement & Distribution Unit has a staff of 3; a professionally qualified Procurement and Distribution Manager funded by AusAID, a Pharmaceutical Advisor and a Procurement Officer and is organised as shown on the following chart:

Medical Supplies Procurement & Distribution Unit



Reporting to the Executive Manager, Corporate and Commercial Services Division, the Procurement Manager sets and maintains procurement standards in the department. His role and responsibilities for Distribution are not clear and there appears to be no good reason for him to be involved in this logistics function.

The roles of the Pharmaceutical Advisor include:

- Providing pharmaceutical advice and guidance to the Procurement Manager,
- Preparing tender documents including schedules of requirements.
- Oversight of the Area Medical Store Badili warehouse with its staff of 22
- Inventory Control, for which there are no staff.

This is too great a task for one individual and consideration should be given to a complete review of the logistic functions and organisation.

The Procurement Officer has received no formal procurement training so there is a lack of resource and skills to undertake pharmaceutical procurement, the Manager being the only professionally qualified procurement specialist. There is a requirement for a professionally qualified, Senior Procurement Officer to act as Assistant to the Procurement and Distribution Manager another professionally qualified Procurement Officer to manage the Unit's procurement contracts. The second Procurement Officer should be trained in the use of the inventory management system. He also needs professional training in procurement.

3.1.2 The Supply System

(a) The Pull Supply System

In broad terms there are just two methods for supplying goods to health facilities; namely the Push system and the Pull system. Both have unique advantages and disadvantages summarised as follows:

PUSH System	PULL System
• Centralised control so customer receives whatever the system sends, regardless of need.	• Decentralised control so customer only receives what he needs.
• Cost fixed so budgeting is simple.	• Cost varies with value of goods ordered so budget holders need to ensure that funds are sufficient.
• Potentially wasteful as not all goods may be required.	• Less waste through unnecessary oversupply.
• Works automatically requiring no customer input.	• Requires customer to be proactive and to calculate quantity to order.
• Distribution straightforward as consignment never varies.	• Distribution requirements may vary with each consignment.
• Easier to calculate procurement quantity as issue rate does not vary.	• Procurement quantity has to be calculated based on historical usage data.
• Need for inventory management software is of less significance.	• This will require an inventory management software system to operate effectively.
• Same goods every delivery so less important to check stock at month end.	• Month end stock check vital to calculate what needs to be ordered.

Current Situation

Within the provinces visited, most health facilities visited described a common set of problems encountered in making the Pull system meet their requirements.

- Orders on their “parent” Area Medical Store were rarely met in full quantities,
- Goods would be received that had not been ordered and were not required, which amounts to dumping by the AMS to disperse surplus items or those whose expiry date was imminent,
- Receiving goods with little remaining shelf life.

There were exceptions and from our modest sample of facilities, it appeared that those served by AMS Lae had fewer complaints about short shelf life. In fact Goroka hospital pharmacist stated that he normally received the quantities ordered. What was interesting here was that the pharmacist operated a simple spreadsheet based inventory management system which enabled him to calculate quantities required based on past usage.

Elsewhere, accounting for stock was generally poor with more than half having Medical Supplies Stock Registers that were not up to date and none having completed the section dealing with average consumption. AMS managers considered the standard of bi-monthly stock reporting by health facilities to be poor and the data deemed to be unreliable. For a Pull system to operate effectively, it is important for health facilities to provide accurate data as this contributes to the calculation of overall consumption from which procurement quantities are calculated. If the Pull system is to be resuscitated, more emphasis will need to be placed on training health facilities staff in the need for providing accurate stock reports.

Currently hospital pharmacies submit monthly demands on their “parent” AMS whilst APs and HCs submit demands bi-monthly. This is a reasonable method of operating but it should be noted that the longer the period of time between placing a demand and receiving replenishment stock, the greater the stock level which must be held at the health facility.

Area Medical Stores normally place demands on NDoH every 6 months. Annual requirements are calculated by NDoH based on the annual stocktaking returns from AMS’. This is an unsatisfactory source of data upon which to base such important procurement decisions and contributes to the difficulties faced by Procurement in determining the correct quantities to procure. The supply chain is further complicated by having suppliers deliver directly to each AMS. Given the total lead time for tendering, supplier lead time and transit lead time, the needs of an AMS might have changed by the time that delivery is completed. It is preferable to deliver to one point, usually a Central Medical Store, from where distribution can be organised as appropriate to the requirements of each AMS at that point in time.

The Pull system requires a suitable inventory management system so that usage can be logged from stock returns, average consumption calculated and projected requirements for a given number of months estimated. FoxPro is unsuited for this task and a modern database design for managing pharmaceutical goods is required.

Until accurate reporting of usage and stock in the prescribed cycles occurs routinely throughout the health facility chain, a Pull system is unlikely to provide a satisfactory service to its customers and the Procurement Unit will be unable to plan ahead in order to obtain best prices by placing orders through international tendering.

Since Amoxycillin 500 mg Capsules are so widely reported as being in short supply, we investigated previous order history for this item. We looked at orders placed since June 2008

and of the 11 orders placed, all but one of the orders were for call-off quantities against contracts resulting from CSTB contracts.

Call-off quantities are taken from the supplier at intervals as required and for contract CSTB 191, a firm price has been maintained for all deliveries. This is a normal procurement methodology.

It was not possible in the time available to determine why health facilities frequently have nil stock of this item but clearly, the quantity consumed exceeds the quantity procured, presumably because the data on which procurement is based is not accurate.

High consumption of an antibiotic such as Amoxicillin may mean that health facilities are over prescribing, or that leakage is high. With a proper inventory management system in place it would be possible to further analyse this situation.

(b) Warehousing

The current concept for warehousing is that when they require stock replenishment, orders are placed on the supplier by the Medical Supplies Procurement and Distribution Unit and the supplier is required to deliver the goods directly to the appropriate Area Medical Store under a term known locally as FIS (Free in Store). FIS is not a recognised INCOTERM for freight movement and DDP (Delivered Duty Paid) should more correctly be used.

Warehouse management is a specialisation in its own right and there should be an appropriately qualified warehouse manager responsible for the three Area Medical Stores. Warehouse operations for each Area Medical Store should be the responsibility of a qualified warehouse supervisor. The role of pharmacists in the warehouse should be limited to providing support services with respect to pharmaceutical quality.

We understood that DPs may be considering upgrading the warehouses. If upgrading included the provision of new pallet racking, better use could be made of available space and if warehouses were air conditioned to manage ambient temperatures, the risk of medicines being degraded by storage at high temperatures would be reduced.

Area Medical Store Mount Hagen appeared to be well managed. The storage area was tidy and book keeping was up to date. Racking and binning were used to good effect although more racking would have increased capacity. There was a staff of 17.

Area Medical Store Lae was also well managed, neat and tidy. A random check of 100 items found no items to be beyond their expiry date. AMS Lae serves 5 Provinces and has a staff of 20.

Area Medical Store Badili. This store was badly run and badly kept. Cartons of medical goods were covered in dust, aisles were cluttered with boxes and a random sample of 100 items showed 20% of the items to have exceeded their shelf life, a further 11% were within 6 months of expiry and 8% would expire within 12 months.

(c) Inventory Management

Inventory Management is the lynch pin linking procurement and warehousing and it is difficult to comprehend that NDoH has been operating with unsuitable software (a FoxPro based database) and with no dedicated inventory management staff. The key tasks of inventory management are:

- Manage warehouse stock levels to optimise cost of stock holding balanced against availability of stock
- Hold expiry dates for "shelf life" items ensuring issues policy is 'first in, first out' (FIFO)
- Allocate storage locations and maintain the master location record
- Maintain a record of all receipts of goods from suppliers
- Maintain a record of all issues to customers
- Provide an audit trail of all transactions
- Advise procurement when procurement action should be taken
- Guide procurement on the quantities to be procured
- Record and manage stocktaking.

Without inventory management, those responsible for warehousing will have difficulty in maintaining an accurate record of their stock quantities and locations whilst those responsible for procurement will have no reliable data on which to make judgements of the quantities to procure, or when to place orders if stock outs are to be avoided.

Whilst there will be important overlaps between the procurement, inventory management and warehouse functions, inventory management should be a specialised unit in its own right. The separation of functional responsibilities helps accountability and reduces the opportunity for fraudulent transactions.

Currently FoxPro is used for inventory management but, as an old database programme, it does not offer the functionalities described above which are available in suitable modern products. It is doubtful that even with extensive software development, FoxPro could be made into a suitable system. In addition to its other shortcomings, it is slow, features record locking (i.e. a system which prevents simultaneous access to the data in the database) and is not suited to the task for pharmaceutical inventory. It should be replaced as a matter of urgency with a modern system designed for pharmaceutical goods. One such system is mSupply supplied by a firm called Sustainable Solutions. It is successfully used in a number of island states within the region, the closest being Solomon Islands which has used it for about 6 years.

If NDoH are to move forward with the introduction of an inventory management system, the indicative staffing for the Inventory Management Unit would be about 6 including one in each of the Area Medical Stores, one in the Medical Supplies Procurement and Distribution Unit and two others. Technical assistance will be essential to:

- Scope the structure and staffing levels necessary to undertake procurement, inventory management, warehousing and distribution efficiently,
- Train the suitably qualified staff once they have been recruited.

3.1.3 Sub-Central Organisations

The logistics supply chain below NDoH and the Area Medical Stores is centred on Provincial Offices. Currently, some provinces are in a state of transition from having Provincial Health Offices to Provincial Health Authorities (PHAs). The main implication of this reorganisation is the transfer of the management and funding of provincial hospitals from NDoH to PHAs.

Health facilities below the 19 provincial hospitals level are approximately 736 health centres and 1,930 aid posts (provided by NDoH). Each aid post is "parented" by a health centre. Health centres consolidate supply requirements from aid posts and submit them to their designated area medical store, via the provincial health organisation.

Health facilities (HCs & APs) all appeared to be short of antibiotics and complained that when they submitted stock states and orders, they never received the requested quantities. It is difficult to establish whether this is due to over ordering in which case the order is reduced by the AMS to what it considers a more realistic quantity, or under supply which could occur when the AMS has insufficient stock to satisfy every order, so rations the quantity given to each facility. As far as could be established, there appeared to be two possible reasons for this:

- Stock returns submitted by some health facilities were considered to be inaccurate e.g. showing nil stock. Given the standard of booking keeping (Medical Supplies Stock Registers) observed in some HCs, this seems quite possible,
- Health facilities ordered quantities assumed to be more than actually needed, a common problem in any supply chain, particularly where the recipient has no budget responsible for the financial cost of the order,

Whatever the cause, it appeared to be a general complaint that some of the most commonly used medications were not available at the health facilities visited during the Assessment.

Details of observations in respect of the provinces visited and the health facilities visited within those provinces are at Annex A.

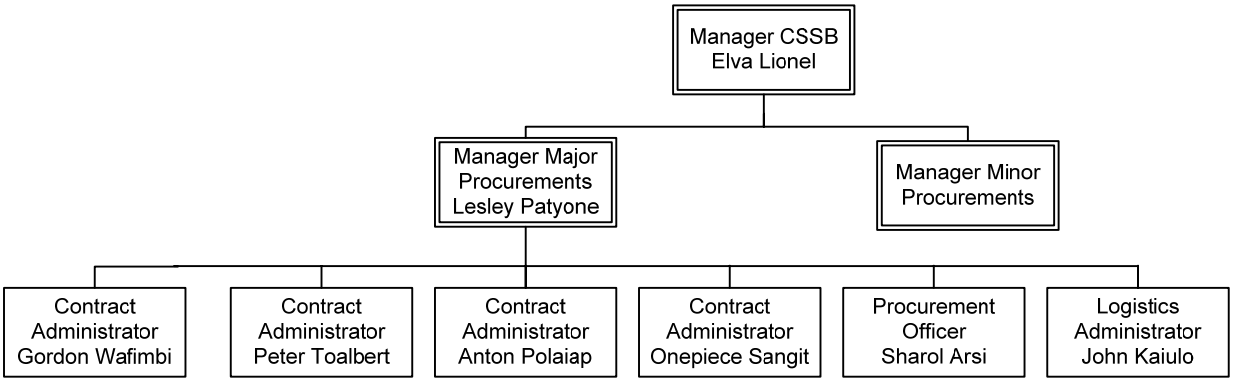
3.2 Procurement under HSIP

A significant proportion of AusAID's past direct financing assistance to the health sector is channelled to the NDoH through the Health Sector Improvement Programme Trust Account (HSIPTA). Contributions to the HSIPTA were originally directly managed by the HSIP Management Branch (HSIPMB) which was specifically established for this purpose. This provided a separate, parallel system from the personnel who managed the NDoH's other GoPNG funds although the procurement processes relied upon were the same as those operated by NDoH. The HSIPMB was staffed by PNG national staff and staff appointed through the Capacity Building Services Centre (CBSC), one of AusAID's other, non-HSIP, funding channels. Following the integration initiative of 2009/10, many of HSIPMB's functions were absorbed by NDoH leaving only the procurement function which is now carried out by the newly named Commercial Support Services Branch (CSSB).

CSSB is now responsible for the procurement, implementation and monitoring of all non-medical supplies and works closely with Health Services Standards which sets and monitors technical standards in respect of health issues. It is undergoing restructuring and its final staffing levels have not yet stabilised. One of the contract managers who appears to be among the most active is apparently supported by at least one architect and one engineer (though there are clearly more in the same department, below). These three posts, however, are posts funded under CBSC and not, therefore, permanent staff positions. The human resources department is currently seeking application for two full architects and one engineer but the response has been poor, a common problem facing the public sector at present given the low levels of remuneration and a buoyant private sector market. This already represents a net loss of capacity for CSSB which, in its previous incarnation under HSIPMB, could count two architects, two engineers and a builder with QS (quantity surveying) experience among its permanent staff.

It has not been possible to obtain an organisation chart of the Commercial Services Support Branch (CSSB) and a different response is received each time to the question of who populates the Branch. However, from interviews with staff members, it is thought to be along these lines.

Commercial Services Support Branch



The Major Procurements Unit undertakes procurement for:

- Equipment such as Sterilizers,
- Infrastructure development Programmes such as the building of STI clinics and
- Maintenance Programmes such as hospital renovation.

The Minor Procurements unit is understood to undertake procurement of services such as travel and accommodation for NDoH. Procurement undertaken by the Minor Procurements Unit has not been included in this Assessment.

Capacity levels are thus diminishing, not increasing, so that any capacity deficiencies identified in pre-CSSB procurement are likely only to be exacerbated in future. The contract manager referred to above is experienced in procurement and management of project, having worked in both the public and private sectors but he, like other staff, has not benefitted from any targeted capacity development. The limited number of staff and their lack of up to date training mean that they are ill-equipped to manage all the procurement and implementation functions asked of them.

An additional problem brought about by the restructuring is that there is new staff in place. In practical terms, this means that the staff responsible for earlier procurements is no longer available for interview leaving the assessment team dependent on the inadequate files left behind. As indicated on numerous occasions, one of the main deficiencies of all the organisations concerned is the poor levels of record keeping and the existence of, at best, incomplete files. In some cases, there are few if any records available. The assessment team sought, for example, to assess the quality of the procurement of stationery by HSIP but was faced by an almost total absence of records from which to make any meaningful assessment.

There is a serious staffing issue within CSSB which is exacerbated by the current restructuring. The number of staff appears insufficient to manage the level of contracts it has to manage and, given the logistical issues involved in managing the outstanding contracts, there are likely be further contract administration problems. The level of procurement knowledge of the current staff is also limited. Whilst the current acting manager has significant

experience, neither he nor his colleagues have benefited from any specialised procurement training (they are not, for example, participating in the current CIPS training initiative of CSTB). This may well affect their ability to undertake procurement of phase 3 of the STICCP, even assuming that a sufficient number of staff can be recruited.

3.3 Assessment of Private Sector Warehousing and Distribution Capability & Capacity

Four firms were visited to gauge their warehouse capacity and operating skills, their distribution methods, stock management and physical security. The firms visited were:

- City Pharmacy
- BNM (Port Moresby)
- Oil Search Ltd (Port Moresby)
- Post PNG.

City Pharmacy operated from a large site on the outskirts of Port Moresby. They have a well managed and large warehouse containing household as well as pharmaceutical goods. Inventory management is linked to the Electronic Point of Sale (EPOS) software which is operated in all its retail outlets and downloaded to the head office overnight. Distribution is by freight agents. Some supplies are distributed by air, others by sea and road.

City Pharmacy recently bid in association with Post PNG for the procurement, warehousing and distribution of Global Fund medical supplies. Security at the site is much in evidence and leakage from the warehouse is claimed to be as low as 0.6%. They have a staff of around 2,000 nearly half of whom are female, deemed to be more reliable workers. An impressive well managed organisation.

BNM (Port Moresby) is part of the Australian Boucher & Muir Group. The Group are pharmaceutical distributors. Their facility in Port Moresby is relatively small. All product held in the storage facility has already been bought by their customers, so they operate as a transit store holding the goods until required by the customer. Distribution is managed for them by Post PNG.

Oil Search Ltd proved to have little of interest for the health sector, their own in-house medical support being managed by their Health & Safety Department. It operated solely in support of their field operations albeit with a very small hospital facility in Credit House, Port Moresby. Warehousing was limited to a storage area managed by TNT at the airport and this was designed for field plant and equipment.

Post PNG is probably the best organisation to get goods to a vast number of destinations in PNG on a regular basis. At the time of writing (August 2011) they are about to undertake the distribution of school books to schools throughout PNG. Once they have completed this task it will be possible to make a judgement on just how successful they were. BNM (Port

Moresby) use them for distribution of medical supplies and until quite recently they had a contract with NDoH for distribution.

Full details of each provincial visit are included at Annex B.

Conclusion.

It appears likely that City Pharmacy would be the best in-country firm to undertake warehouse management if NDoH wished to outsource this operation. They are familiar with managing warehouses holding pharmaceutical products and with a staff approaching 2,000 the additional numbers required to manage the 3 Area Medical Stores, probably little more than 60 in all, would not be difficult to administer.

For distribution, Post PNG appears to be the obvious choice as they have an extensive network of Post PNG offices and agencies already established in many parts of the country. They have considerable operating experience and access to additional temporary staff when required. Having previously associated with City Pharmacy to win business, they appear to have the synergy to work together should NDoH wish to outsource both warehousing and distribution functions under one head contract.

SECTION 4 SUPPORT AND CONTROL SYSTEMS

Given the findings of the Team in respect of lack of compliance and probity, these systems should be crucial. Reference has already been made to the lapses of management in respect of enforcing compliance but probity issues appear to be prevalent and rife. In the case of the STICC, for example, the Probity Audit Report contained in the files also makes several references to a lack of probity, notably with the involvement of one of the public officers who was a member of the TEC. It appears that he was also a referee/reference named in both winning tenders. This does not mean that he acted inappropriately but a perception of improper behaviour is raised. At the very least, the public officer should have made a declaration of potential conflict as required by the GPM.As mentioned in the context of the procurement cycle, delaying tactics also appear to have been used for personal gain. This has been alleged in respect of members of the CSTB. The EU Draft PFM Report makes reference to political interference, though this is not related to the health sector.

For these reasons, control issues should and need to be high on the agenda. They are not. Management appears disinterested and there are no internal mechanisms to enforce compliance. The legal framework does not provide an effective external and independent review mechanism even though, as mentioned in section 2, B-3, some bidders did manage to overcome a preferential specification in the bidding documents.

In terms of control, the only formal mechanisms that exist are in terms of audit and these would need to be robust given the concerns raised above. Whilst audits are carried out, it has not been possible always to verify their scope or their success.

NDoH has its own internal Audit Unit. It is also audited by the Department of Finance. HSIP is subject to external audit. Provincial Divisions of Health are audited by the internal auditors of Provincial Administration. In the Provinces, auditors stated instances of being locked out of Units that they tried to audit. Fires (conveniently) destroyed the majority of provincial records in the Western Highlands Province and also in Milne Bay. It is understood that from the audits carried out there were many instances of non-compliance recorded with no enforcement of compliance.

No audit reports were provided for review however in the Provinces it became clear that Provincial Audit Units are not sufficiently staffed and often recommendations of audit reports are not followed up. At the national level information provided suggests that more internal auditors will be recruited.

SECTION 5 RECORD KEEPING

A major issue faced by the Team in respect of record keeping was a lack of access to data, especially outside Port Moresby. The Team was on several occasions faced with statements from available staff that files containing the relevant records were contained in locked cupboards and that those holding the keys were either absent or could not be found. Since the site visits were necessarily brief and tightly organised, the result was that those files could not be reviewed. A number of files were, however, made accessible.

One thing that may be said is that the case files reviewed at the national level (CSTB) were neatly compiled. Generally, however, the content appeared to be incomplete, e.g. there was no record of minutes of a bid opening and some evaluations were written up in such sparse detail that there was no clear trail as to how the recommendation for award had been reached. Whilst fewer files were made available for inspection at the provincial level, those that were seen confirm this general trend, i.e. they were tidily kept, even if incomplete.

In the case of STICC procurement, for example, the records and files relating to the procurement of the phase 2 construction are incomplete. Our interlocutor at CSSB was not employed by HSIPMB at the time of the procurement (most have moved on), so it may simply be that he was not able to lay his hands on the relevant files. However, the files made available to the team did appear to be the correct files but there were only two files which contained any relevant records, one which effectively concerned contract management and the other which collected together various documents relating to the procurement itself. This latter file contained documents relating to three contracts: the first and second package of the phase 2 build and the supervision contract for both. It seems that, in respect of this supervision contract, the procedure had reached the recommendation by the CSTB but this was cancelled by AusAID who then directly appointed the supervisor. There was insufficient documentation on file to provide an explanation of these events.

Given the size and scope of the procurement and the length of time it has been running, two lever arch files would seem to be insufficient to cover all the steps taken in the procedure and, indeed, only a small part of the expected documentation was included in the files. This points again to poor recording but does not necessarily reflect bad procurement practice. As an example of the lack of information, there was only one advertisement whereas there were two packages; the invitation to tender was included but appeared incomplete; only the tender submissions of the successful tenderers were included in the file; there was no record of tender opening (other than the standard letter produced by CSTB); there were responses to two requests for extension of the bid validity period from some, but not all, tenderers but no copy of the request; there was no record of site visits, pre-tender conferences, requests for clarifications, debriefing or any other interventions.

Whilst record keeping is important from the perspective of maintaining a proper and auditable audit trail, the immediate benefit is of course to facilitate project and contract management. The Team came across instances where poor record keeping has had a demonstrable effect of contract management. In the case of the Heduru Clinic extension, described in section 2, B-9 above, the managing contractor (QCPP) signed an Acknowledgement of Contract Award

on 2 September 2010 and 3 copies of the contract were sent to them on 21 December 2010. It is understood that QCPP raised objection concerning some parts of the contract but that the Contracts Administrator was unable to produce the letter. QCPP sent a first stage payment invoice on 4 March 2011 which remains unpaid, presumably because payment cannot be progressed until the contract is signed.

Record keeping in HCs, APs and Transit Stores was generally very poor and in the Badili warehouse almost non-existent. Provinces and PHAs must stress the importance of maintaining accurate stock records in the Medical Supplies Stock Registers provided to every HC and AP. Provinces and PHAs should introduce a requirement for HCs and APs (through HCs) to provide stock states at the end of every month in preparation for the introduction of an inventory management system and in preparation for moving to a Pull system of supply.

The FoxPro inventory management system currently deployed to AMS Badili, Lae & Mount Hagen is inadequate for the task of managing pharmaceutical stock. It is slow, it does not hold all required data fields and record locking prevents multi user operation.

Information on type, number and value of procurement contracts placed per annum was not available and, as far as could be established, such records are not kept. If accountability and transparency are to be improved, records of contracts placed and contract values should be available.

Poor record keeping appears to be a wider phenomenon. The EU Draft PFM Report which covers a broader cross-section of government also states that document retention facilities and practices are generally poor. Documents could not be located or provided and standard files were not maintained in accordance with legislative requirements.

SECTION 6 STAFFING

The Human Resource (HR) Manager of NDoH had been in post for only some 6 weeks and was unable to provide in-depth information. The final structure to be achieved by the on-going restructuring of NDoH, procurement and pharmaceutical regulatory control could not be established. Seemingly it was in the hands of a Senior Executive Management Team but they had not produced an organisation chart to help anyone understand where they had come from nor where they were heading. The total lack of communication within the organisation extended to the point that line managers seemed not to know what their final organisation or staffing level would be. The HR Manager stated that job descriptions were held for all positions but declined to make any available without authority of the Executive Manager, National Health Policy and Corporate Services. This was not forthcoming in the time available.

Detailed comments are made in respect of the restructuring in section 3 above which concerns the organisation of the relevant bodies.

Staff training is almost non-existent. As mentioned in section 3, there is no established programme of training and participation of any individuals from NDoH in the CIPS-based training organised in conjunction with CSTB appears coincidental. Whilst some of the individuals met clearly had experience of procurement in other departments, they had not received any specific training.

HR Manager gave details of some salary scales and some information was obtained from the private sector; however it was not possible to compare on a like-for-like basis without taking into account such factors as job security, pensions and other social benefits, housing etc. It seems likely that, as with public servants in most countries, NDoH staff are paid less than their counterparts in the private sector although benefits may help to redress this imbalance.

	Typical Appointment Title	Public Service Grade	Salary range
NDoH	Manager	17	K 37,000 – 46,500
	Procurement Officer	16	K 32,000 – 39,900
		15	K 28,900 – 35,800
Private Sector	Executive Manager		K 150,000 +
	Senior Manager		K 80,000 – 90,000
	Manager		K 45,000 – 50,000
	Coordinator / Supervisor		Up to K 30,000
	Driver		K 10,000 – 17,500

Sources: NDoH figures obtained from NDoH HR Manager. Private sector figures provided by a service provider and these are likely to be towards the lower end of the range for employees in the private sector.

The private sector rewards senior managers with salaries significantly higher than those in public service, but they are better trained and better qualified to undertake their responsibilities.

SECTION 7 PRIVATE SECTOR VIEWPOINT

The general perception of public procurement is that:

- Corruption is a serious problem.
- Political influence in decision-making is chronic.
- There is a lack of transparency.
- There is a lack of compliance with the legal framework for procurement and little enforcement of compliance.
- There is weak capacity and impact of accountability oversight institutions.
- It is too slow.

The perception of the private sector was that the NDoH is not able to meet health sector needs due to staff shortages, poor management, incompetence, vested interests and corruption. This is something of a generalisation but such views will be aired in the national papers with the slightest excuse. The views of one supply professional interviewed were that low salaries resulted in recruitment of less competent staff, lack of training prevented these staff from reaching a reasonable level of competence and, in the case of logistics, lack of an inventory management team severely hampered the work of procurement in trying to obtain value for money because it resulted in last minute crisis procurements rather than properly planned tender processes.

Whilst much is made of corruption, specific cases are hard to identify because individuals are afraid for their own safety if there is a possibility of the source of information being traced back to them. There are numerous newspaper reports to suggest rampant corruption within NDoH. It is also known that individuals working in the health sector have received threats to their personal safety. Although a code of ethics has been prepared and accepted by NDoH there is reluctance to publish it.

SECTION 8 ASSESSMENT AND RECOMMENDATIONS

Summary Assessment

The present centralised drug procurement and supply management system is not capable of supporting the health requirements of the population of PNG. The reasons are manifold:

- Organisation and structure not fit for purpose combined with weak management.
- Lack of sufficiently trained and qualified personnel.
- No staff motivation by incentive nor performance based appraisal system.
- Poor salary scales contribute to low motivation and low output.
- Lack of urgency to fully implement change and reorganisations recommended by audit and assessment reports.
- Failure to communicate at all levels.
- Quantification issues due to lack of suitable inventory management software.
- Reported malpractice and fraudulent practices.
- The failure to update the 2002 edition of the Pharmaceutical and Dental Catalogue denies public access to the most recent medications.
- There is no functioning national drug regulatory authority to control the quality of imported drugs.
- Failure of senior managers to manage functions for which they are responsible.
- Lack of responsibility and accountability.
- Fiduciary and other risks are significant.

In the sections below we make key recommendations against the main assessment tool headings.

LEGAL ASPECTS AND TRANSPARENCY

Assessment of and General Recommendations concerning Legal Framework

The overall assessment of the legal aspects and transparency considered two distinct elements: (i) the legal framework and (ii) implementing and support measures.

(i) Legal Framework

The legal framework consists of the PFMA and the FMM. Both require amendments and/or improvement. It is understood that this will be the focus of CSTB efforts following their National Assessment which took place in 2010. In particular, we understand that a new law is likely to be drafted which will provide the opportunity to remedy many of the deficiencies set out in this report and in the National Assessment itself. In order to inform that process, however, we make the following general recommendations.

Though these recommendations are targeted at the national legal framework, this is the framework on which NDoH depends for its procurement so that any improvements can only be made within NDoH where the national legal framework itself is amended. In proposing any amendments and/or improvements, we believe the following, at least, require attention in order to bring the national legal framework into line with internationally accepted standards and thus to provide an efficient, effective and transparent procurement system which is likely to achieve improved outcomes and instil confidence in the supply market to the benefit of all stakeholders:

a) ***Procurement methods*****:** provide for a full range of methods in appropriate circumstances and based on strict conditions of use, including prequalification (and removing the current prohibition), two stage procedure, an UNCITRAL type restricted procedure, and the introduction of framework agreements (panel contracts), notably for use with pharmaceutical procurements;
b) ***COI*****:** the circumstances justifying its use should be expanded, under strict conditions, to reflect the situations where the comparable "negotiated" or "single source" procedures would be permitted under the CPG;
c) ***Consulting services*****:** an appropriate national procedure must be introduced into the legal framework;
d) ***Advertising and transparency*****:** the term "relevant international media" needs to be defined;
e) ***Publication*****:** the time period for the publication of contract award notices needs to be established;
f) ***Time Limits*****:** whilst these are broadly acceptable for the submission of standard bids, there is no indication of how they should be amended depending on type of contract and no provisions for extensions where necessary;
g) ***Participation*****:** selection/qualification criteria need to be detailed to enable procuring entities to identify or apply appropriate criteria for different types of contract;
h) ***Debarment*****:** if this is to be applied at all, a formal and transparent system must be introduced which provides for a fair system, including the right to present a defence;
i) ***Technical specifications*****:** the legal framework needs to be amended to require the use of neutral and non-discriminatory specifications, including the exceptions such as use of brand names only when there is no reasonable alternative and provided that equivalence is required;
j) ***Evaluation*****:** the legal framework needs to make a clear statement as to what evaluation criterion applies;
k) ***Post-tender price negotiations*****:** these must be formally prohibited in the legal framework;
l) ***Domestic preference*****:** if this is to be retained at all, the basis, amount and means of application of preferences must be established clearly in the legal framework;
m) ***Debriefing*****:** debriefing should be made mandatory;
n) ***Planning*****:** a *legal* requirement to carry out procurement planning (even if it is mentioned in the GPM) should be introduced in order to provide some rational basis for the management of procurement;
o) ***Record keeping*****:** stronger provisions and on record keeping and recording

templates should be introduced;

p) ***Contract packaging etc*.:** legal provisions should be introduced regarding contract packaging, aggregation of demand, bulk purchasing and framework (panel) contracts;

q) ***List of preferred suppliers*:** the system of maintaining lists of preferred suppliers be formalised and made public in order to prevent the manipulation which sometimes takes place; thought may be given to removing the practice of maintaining lists altogether if an appropriate pre-qualification procedure is introduced;

r) ***Internet Advertising*:** no use is currently made of electronic means of communication but efforts should be made to (re-) operationalise the CSTB website to at least offer on-line advertising and contract award notices.

s) **Complaints mechanism:** the provisions in the legal framework need to be amended to make the complaints mechanism effective. The *requirement* that complaints should be resolved (and only resolved) at the lowest level possible should be removed where it is not accompanied, as is the case now, by an effective appeal procedure following the failure of resolution at that lowest level. It may be that the national assessment recommends an alternative avenue for review but, whatever avenue is chosen, the effectiveness of the system needs to be addressed. Whether the review mechanism remains with the Ombudsman Commission (to the extent that it continues to have this role/authority) or is established elsewhere, there must be an established mechanism and procedure with time limits and procedural directions so that bidders know how it will be applied. This should be done in cooperation with the Ombudsman Commission, if this remains appropriate, (or other body) which should also receive technical assistance is establishing rules of procedure in respect of procurement complaints.

A full and detailed list of the deficiencies in the legal and regulatory framework is contained in section 11.4. Even if not covered explicitly in the items listed above, they will need to be addressed in any review of the framework.

(ii) Implementing and Support Measures

These concern mainly supporting manuals for the implementation of the national legal framework applicable also to NDoH. The GPM may contain some valuable guidance but it was clearly drafted with other procurement systems in mind so that it is not always consistent with the overarching legal framework: (i) it describes processes quite differently from the PFMA and FMM which causes confusion and (ii) it introduces issues and concepts which do not feature in the legal framework making their legal basis doubtful and depriving them of validity.

As a result the GPM should be amended as suggested above so that it details only those issues which have been raised in the PFMA/FMM. Where necessary, the FMM should be amended to provide for those matters for which the GPM will provide guidance.

Thought should be given to introducing an “Operational Manual” at the level of the NDoH i.e. one which does not replicate the GPM but which provides a step by step guide to

practical implementation of the legal framework adapted to the circumstances of NDoH.

In addition, the national legal framework does not yet have in place mandatory national STDs, although a number have been prepared by CSTB and are apparently nearing adoption. At the national level, it is recommended that these been finalised and adopted as soon as possible. More specialised STDs could be envisaged for NDoH but these would need to be coordinated with the CSTB to ensure consistency.

Recommendations on use of Legal Framework

Amending the legal framework will clearly take some time which means that, in the interim, the current framework with all its deficiencies will continue to apply. Whilst appropriate recognition and credit should be given for the CSTB initiative to amend the Law, it will also be important to take account of the present deficiencies in deciding if or not the national framework for procurement can be used by Development Partners in the immediate future.

On the understanding that amendments will be made to the legal framework to address, among other things, the deficiencies identified above, the following legislative, systems and regulatory equivalence measures would need to be specifically and contractually applied to AusAID funding:

- Framework agreements should be used where appropriate;
- Pre-qualification should be permitted,
- The period given between invitation and bid submission shall, in the STDs, be stated to be subject to the needs and nature of the contract;
- Any STDs used should be reviewed to ensure that they provide clear selection/qualification criteria enabling procuring entities to identify or apply appropriate criteria for different types of contract;
- Those STDs should also provide clear and consistent evaluation criteria;
- Post-tender price negotiations must be clearly prohibited;
- Contract award notices must be published;
- Debriefing of bidders must take place, where requested, in all tendered contracts.

However, considering the combined impact of:

- The lack of capacity and capability of NDoH to carry out procurement
- The lack of compliance and accountability
- The vested interests and apparent interference in the procurement processes and
- The incomplete and inconsistent legal framework that includes a number of unacceptable provisions compared with the principles of CPG and World Bank Guidelines.

Use of the current national legal framework for procurement for AusAID funded Programmes cannot be recommended.

PROCUREMENT CYCLE MANAGEMENT

B 1 - PROCUREMENT PLANNING

Assessment Summary

Due to the lack of proactive management including proper procurement planning the procurement process is compromised from the start.

Recommendations

- GPM requires all Departments to submit Procurement Plans to CSTB by 28 February each year but this does not happen and there is no enforcement. HSIP spend should be subject to a Procurement Plan but it is unlikely to be appropriate for pharmaceutical procurement. There needs to be a system of Procurement Planning introduced at the high level to cover overall needs and at the individual contract level so that all activities are carefully planned and executed
- The Procurement Plans should follow on after budgets have been agreed and should be discussed with senior management prior to submission to CSTB by the due date.
- Procurement Plans also need to be kept on file centrally so they are readily available for reference as the need arises.
- In the case of pharmaceutical procurement planning should be developed from the output of an inventory management system.

B 2 - PROCUREMENT CYCLE

Assessment Summary

Overall bureaucratic procedures and delaying tactics slow down the procurement processes and an effort needs to be made to streamline and manage the cycle, whilst at the same time eradicating malpractices.

Recommendations

Procurements need to be proactively managed through all stages to avoid delays and slippage. From the tenders investigated, it appeared that too little time is allowed between advertisement and tender closing, as little as 3 weeks in 2 cases. On the other hand there are extensive delays in the subsequent evaluation process. There appear to be 3 major areas of delay:

- Assembling an appropriate evaluation committee
- Obtaining clearance from the State Solicitor
- Obtaining the APC.

Government should review these processes with a view to reducing delay. NDoH should consider options to making it easier to assemble an evaluation committee.

Pre-qualification should be made permissible as the use of pre-qualified suppliers can reduce procurement lead times.

B 3 - BIDDING DOCUMENTS

Assessment Summary

There is a lack of robustness and clarity in the construction of the bidding documents. Since the arrival of the AusAID financed Procurement Manager measures have been introduced to improve the standard of documentation.

Recommendations

- Until such time as CSTB is able to introduce suitable STDs for use by Government Departments, NDoH needs to have its own set of workable STDs.
- There need to be clear User Guides to go with the STDs so that procurement officers can see clearly how to prepare STDs for specific requirements and how to manage the tending processes.
- There needs to be an Operational Manual that accurately reflects procurement procedures and processes that procurement officers must abide by.

B 4 - PRE-QUALIFICATION

Assessment Summary

Although pre-qualification is prohibited under the FMM, it would add value to the procurement of health products in particular due to a lack of regulatory authority and quality assurance.

Recommendations

The Medical Supplies Manager Procurement & Distribution Unit has determined that in the absence of a pharmaceutical regulatory authority, procurement will be limited to suppliers with appropriate quality and process certification. Once a regulatory authority is in place, pre-qualification would be appropriate to open up the range of suppliers and encourage competition, but first the FMM will need to be changed to permit its use.

B 5 - COMMUNICATIONS BETWEEN BIDDERS AND THE PROCURING ENTITY

Assessment Summary

Overall communication with bidders needs to be substantially improved.

Recommendations

It seems highly probable that some communications between bidders and the procuring entities occur in an unethical manner. Procurement staff must be educated to understand that during a bidding process communication with bidders must be limited to written questions of clarification only and that such questions are answered to all bidders equally in writing without identifying the originator of the questions. No evidence was found that written records of questions and answers exist and this should be introduced without delay. A sample layout for recording clarification requests is shown below.

Record of Bidders Questions & Answers Given

TITLE OF RFQ OR TENDER:

PROCUREMENT REFERENCE NUMBER:

Date Question Received	*Name of Bidder asking Question*	*Details of the Question Asked*	*Details of the Answer Given*	*Date Answer Given*

B6 - RECEIPT OF BIDS AND OPENING

Assessment Summary

The procedure for receipt and opening of bids appears to be in line with internationally accepted standards. However, how it is handled in practice could not be verified during the assessment, partly due to poor record keeping practices. Tender Opening Reports seen on file at CSTB were incomplete and it is doubtful that in practice there is an acceptable standard of transparency.

Recommendations

There should be an acceptable Bid Opening report including:

- An attendance list of bidders and public who attend the opening
- A record
    - That bids as received were sealed and that seals were intact,
    - Of the names of bidders and the value of their bid,
    - That bid bonds were present and of the appropriate value,
    - That bid documents were correctly signed,
    - That bid validity duration was correct.

- A record of proceedings of the bid opening signed by the Chairman.

GPM does provide a sample Tender Opening Record but its use appears not to be enforced and it omits to check some important aspects of documentation. NDoH should consider using their own Record of Bid Opening based on the GPM and including the checks shown in the sample of a Bid Opening Checklist below.

Bid Opening Checklist

(To be completed for each bid as it is read out)

Tender Reference:			
Tender Title:			
Bid Opening Date:		*Time:*	*Bid Opening Place:*

Names of Bidders						
Is outer envelope of Bid sealed?						
Is Bid Form completed and signed?						
Expiration date of Bid:						
Documentary authority for signing?						
Bid Security	*Is Bid Security attached?*					
	Is it for the correct amount?					
	Is it in an acceptable form?					
	What is the validity period?					
Representative present?						
Any alternative bid?						
Any discounts offered						
Total Bid Price						

B 7 - BID EXAMINATION AND EVALUATION

Assessment Summary

There is a lack of technical competence in evaluation as demonstrated by the criteria and scoring applied. This in turn provides opportunity for manipulation.

Of the files examined at CSTB there was one very well documented evaluation and two which lacked sufficient detail to be able to feel sure that an ethical evaluation had occurred.

Clearly standards are very mixed and CSTB should police the standards of documents provided to them more thoroughly and reject any that fail to match this requirement.

Recommendation
Overall bid examination and evaluation requires improvement in several areas including:

- Identifying suitably qualified experts to undertake evaluations and ensuring their availability when needed.
- Developing detailed procedures for the evaluation process,
- Improving and including as a rule detailed and robust evaluation criteria in the Bidding Documents
- Developing standard forms for use in evaluation.
- Ensuring full and proper records of evaluation committee meetings and award recommendations are kept.

B8 - CONTRACT AWARD AND

EFFECTIVENESS

Assessment Summary
Overall the lengthy process for contract award, contract clearance and contract signature reduces the effectiveness of the procurement function.

Recommendations

- An effort must be made at both the national level and within NDoH to streamline the approval processes.
- Mechanisms must be found to prevent interference in contract award decisions.
- Transparency must be improved.

B9 - CONTRACT

ADMINISTRATION Assessment

Summary
It appears that the important functions of contract administration and fiduciary responsibility are totally neglected.

Recommendations

- A checklist along the lines of the sample below should be clipped inside the cover of each procurement file so that procurement officers can see at a glance what stage has been reached and on what date.
- There must be more responsibility, accountability and ownership of contracts.
- Contracts need to be managed by suitable experienced personnel through to successful completion

TENDER PROCESS CHECKLIST (Pharmaceutical Goods)

Title of Tender	
Tender Reference	International / Limited International Tender
Tender Closing Time	Tender Closing Date
Tender Opening Time	Tender Opening Date

	Activity	Date Completed	Notes
PREPARATORY	List items to be procured and include sufficient specification to enable suppliers to bid		
	Tender Dossier completed		
	Prepare Advertising		
EVALUATION	Tender Opening Report completed		
	Evaluation start date		
	Evaluation completed		
	Evaluation Report Completed		
	Evaluation approved by Tender Board		
POST AWARD	Unsuccessful Bidders notified		
	Bid Bonds returned to Bidders		
CONTRACT MANAGEMENT	Contract award date		
	Contract returned signed by Contractor		
	Performance Guarantee received		
	Publish Award details		
	Contract Completion Date		

B 10 – PHARMACEUTICAL PROCUREMENT

Assessment Summary

The complex requirements for pharmaceutical procurement are not met under the existing structure and resources of the NDoH. Pharmaceutical procurement lacks:

- A Catalogue of Medical and Dental Supplies from which the goods to be procured should be chosen; the current edition dated 2002 being out of date.
- Clear procedures and suitable software for estimating medical supplies needs and quantifying requirements
- A reliable drug management information system to properly plan and manage the procurement of pharmaceutical goods.
- A functioning NDRA for registering and controlling the quality of imported drugs.
- Effective warehousing, inventory control and distribution.

Recommendations

Consideration should be given to outsourcing the functions which AMS Badili should be providing so as to provide a breathing space for the store to be refurbished, restocked and re-staffed in due course.

FoxPro is not suited to providing a modern inventory management system for pharmaceutical goods and this should be rectified without delay since it impacts on both procurement and warehousing. A system such as mSupply developed by Sustainable Solutions is recommended because:

- It is used by a significant number of South Pacific Island states,
- It is designed for use by developing countries,
- It is designed by a pharmacist and is specifically for controlling pharmaceutical products,
- It has been used successfully in the Solomon Islands for the past 6 years,
- It caters for multi-location warehouses.

ORGANISATION AND FUNCTIONS

Assessment Summary

The current organisation (presumed, because the current state of flux makes it impossible to identify with any certainty) of NDoH procurement is incapable of undertaking all the procurement and logistic tasks expected of it.

Recommendation

- There should be consideration to having just one procurement Unit; there is no logical reason to split procurement using HSIP funds from pharmaceutical procurement, indeed by combining the staffs there is an opportunity to operate more efficiently.
- Procurement relies on accurate consumption data to enable staff to buy the right quantity at the right time. That consumption data comes from Inventory

Management, a functional area sadly devoid of staff and suitable software in NDoH and this needs to be addressed.

- Warehousing is a specialist function, and should be treated as such with properly trained warehouse staff replacing the pharmacist in charge of the Badili warehouse.
- Closely associated with the warehouse operation is the need for staff experienced to receive and distribute goods by road and sea and to liaise with customs officers and freight organisations.
- The Team recommend that a detailed assessment be undertaken to establish staffing levels for these functions at an appropriate time when NDoH has overcome other underlying issues.

SUPPORT AND CONTROL SYSTEMS

Assessment Summary

Attempts should be made to improve the management culture which currently appears not to accept or impose accountability. The internal Audit Units need to be strengthened; a system to ensure and enforce compliance needs to be introduced. The mere fact that procurement officers know there will be regular and in-depth independent auditing of their work and that transgressions will be severely punished will act as a powerful deterrent in its own right to corruption

Recommendations

There needs to be:

- Regular spot checks on files should be undertaken by qualified procurement professionals to verify the procurement processes and all related documents and procedures.
- The auditors need to be given random files to audit (perhaps from a review of payments going through the system and this needs to include a selection of contracts of different values and for goods, works and services)
- Audit reports need to be produced with clear findings and sent to senior management
- Where inaccuracies or other inconsistencies are identified these need to be immediately taken up with the individuals concerned and formal warnings given if necessary
- These audits should not only be seen as checks on compliance but also as a useful learning tool in itself. The audit findings should be shared with the individuals responsible and used for training purposes to help procurement officers learn from their mistakes where genuine errors of a non-corrupt nature are identified.
- Audit findings and recommendations need to be addressed by management.

RECORD KEEPING

Assessment Summary

Some files shown to the team were neat but the team may have not been shown true representative samples and there is concern and belief that record keeping

may be inadequate and needs improvement.

Recommendations
Record keeping at both the national and provincial levels needs to be improved and statistics kept to plan and monitor procurements.

- Clear instructions should be introduced as to what documents and files are to be maintained.
- Named officers should be tasked with maintaining records and be held accountable if records are found to be missing or are not complete.
- The structure of files should be determined i.e. order of documents on file, list of key documents that must be on file, consideration of a control sheet on the front cover to enable easy checking of file contents, key documents marked with tabs i.e. copy of bid, copy of supply contract and amendments to contract, invoices and other payment documentations etc.
- There should be a clear destruction date for completed files and they need to be sent to secure store (to avoid the risk of loss due to fire and other hazards) where they are catalogued in a way that enables easy retrieval
- When a file is complete there should be a signature visible on file from a senior member of staff to say the file has been checked by them and is complete with all necessary documentation and is ready for sending to records

STAFFING

Assessment Summary
There is a clear lack of capacity and capability to carry out procurement which needs to be addressed as a matter of urgency.

Recommendations
To achieve this there needs to be:

- A more in-depth review of the current structures in procurement to identify the complement of staff needed and their grading.
- Job descriptions that accurately reflect the various jobs need to be produced ..
- Clear gradings and pay scales need to be agreed that match the job and also are adequate to attract good quality candidates.
- Posts need to be advertised publically with existing officers invited to submit applications in competition to external candidates with no favouritism shown to existing members of staff.
- There needs to be an independent selection committee formed to interview and select candidates.
- There needs to be a clear career path with route to professional qualifications such as the Chartered Institute of Purchasing and Supply (CIPS) for the most able officers. For the less able there needs to be regular on-the-job training and also perhaps more formal workshops and seminars to help career development.
- There needs to be strong management of the procurement teams by experienced procurement professionals.

- The whole logistics function is weak and should be subject to a scoping study to determine the organisation and staffing levels necessary
- Technical assistance will be required to implement procurement and logistic training and initially, to fill management positions.

PRIVATE SECTOR VIEWPOINT

Assessment Summary
Public procurement in the NDoH is generally viewed with suspicion by the private sector. It is not seen as transparent nor particularly well managed

Recommendations
There is an urgent need to improve supplier relationships through:

- Greater transparency in procurement processes by advertising of upcoming tenders, open tender receipt with written minutes produced and circulated, public notification of awards, debriefing of unsuccessful tenderers etc.
- Ensuring specifications are clear and concise and not written around favouring any one supplier
- Ensuring tender documents are easy to follow
- A clear appeals process
- A commitment to pay suppliers and service providers promptly once they have met their contractual obligations
- Regular supplier workshops where they can be guided through the tendering
- processes and encouraged to respond to invitations

RECOMMENDATIONS FOR PROCUREMENT CAPACITY BUILDING

1. AusAID Procurement in the Health Sector in the short to medium term

In the light of the unacceptable state of procurement and supply management functions currently prevailing in NDoH, it is recommended that no further procurement financed from AusAID funds shall be undertaken by NDoH until a viable and sustainable system is built within NDoH or achieved by NDoH through outsourcing.

The only option available to mitigate AusAID's fiduciary risk and to ensure efficient procurement and supply management for health and non-health products financed through AusAID in the short term to medium term is to use an external service provider specialising in procurement and supply chain management.

2. Procurement and Supply Chain Capacity Building in the Health Sector

A Programme of procurement capacity building is not recommended at the present time. Because of the many problems highlighted in this Assessment it is doubtful if a capacity building Programme could be effective or sustainable.

Looking to the future there are a number of options that could be considered in building

procurement and supply chain capacity within the health sector in PNG however, the way forward depends upon:

- The Government of PNG's desires and is committed to see procurement and supply chain reform, and
- AusAID is willing and committed to support procurement and supply chain capacity development.

We believe that it is the right strategy in the longer term to build a strong, professional and sustainable procurement capability within the PNG Health sector as a whole; however this will only succeed if there is the commitment and ownership and leadership from Government to make this happen. This includes sending a strong message to those who, for their own personal gain, wish to see a perpetuation of the current chaotic system that this will no longer be tolerated and that anyone threatening violence towards those involved in procurement will face the full might of the law. If Government demonstrates willingness to this commitment then AusAID needs to decide whether it wishes to provide support and, if so, what form this support should take.

If the commitment from Government is received then consideration should be given to capacity development. One option could be that as a temporary measure (the time period being driven by how quickly local procurement capacity is built in NDoH), AusAID procurement is transacted outside the NDoH whilst a separate capacity development Programme is initiated within NDoH. As NDoH's procurement capability and capacity increases responsibility for AusAID's procurement would be progressively transferred to NDoH. Inventory management would need to be equipped with suitable software to support both the warehouse and procurement to ensure that procurement had sound data on which to base its contracts. The state of AMS Badili is such that initially it may be necessary to outsource its functions to the private sector and subsequently review the long term financial merits or demerits of returning it to NDoH management.

To determine what useable goods can be salvaged from the Badili store, a team of pharmacists will be required to segregate serviceable from unserviceable stock. It is recommended that technical assistance be sought for this task. Once identified, serviceable stock could be transferred to an alternative warehouse until the infrastructure of Badili is fit for purpose. Such alternative warehouse might be under arrangements with a private sector firm and might utilise their staff.

For the logistics functions to be properly staffed, an organisation along the lines of that shown below would be required, however a full scoping study would be necessary to determine precise staff numbers. A significant amount of technical assistance would be required to implement such an organisation and to direct training with a view to eventual skills transfer.

Currently goods are sent from supplier directly to the various Area Medical Stores. Because of the pipeline time and the stock levels held in the AMS', goods received are frequently insufficient to satisfy demand. Consideration could be given to establishing a Central Medical Store. This Central Medical Store would receive all NDoH medical supplies and would in turn re-package them for onward shipment to the various Area Medical Stores. This would provide better control of the quality and quantity of goods received. If the proposed Central Medical Store were located at either Port Moresby or

Lae, it would serve also as an AMS for its provincial dependency. Stock levels at AMS should be reviewed to ensure that their stock levels are at least resupply pipeline time plus a 2-month margin.

Central Medical Store and/or AMSs should also consider an additional percentage stock for epidemics/medical emergencies etc.

An example of the sort of structure that could be considered is: