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<tr>
<td>ACCSQ</td>
<td>ASEAN Consultative Committee on Standards and Quality</td>
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<td>APEC</td>
<td>Asia-Pacific Economic Cooperation</td>
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<td>ASEAN</td>
<td>Association of South East Asian Nations</td>
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<tr>
<td>AusAid</td>
<td>Australian Aid Agency</td>
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<tr>
<td>AVA</td>
<td>Agri-Food and Veterinary Authority (Singapore)</td>
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<tr>
<td>BLA</td>
<td>Bureau of Laboratory Accreditation (Thailand)</td>
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<tr>
<td>B4T</td>
<td>Centre for Materials and Technical Products, Bandung</td>
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<tr>
<td>BBIA</td>
<td>Centre for Agro-Industries, Bogor</td>
</tr>
<tr>
<td>BBK</td>
<td>Centre for Ceramics, Bandung</td>
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<tr>
<td>BBKK</td>
<td>Centre for Chemicals and Packaging, Jakarta</td>
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<tr>
<td>BBPK</td>
<td>Centre for Pulp and Paper, Bandung</td>
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<tr>
<td>BBT</td>
<td>Centre for Textiles Industry, Bandung</td>
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<tr>
<td>BPOM</td>
<td>Agency for Food and Drugs</td>
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<tr>
<td>BPPT</td>
<td>National Agency for Assessment and Applied Technologies</td>
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<td>BOT</td>
<td>Board of Trade (Thailand)</td>
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<td>BSN</td>
<td>National Standardization Agency</td>
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<td>CASE</td>
<td>Consumers Association of Singapore</td>
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<td>CIDA</td>
<td>Canadian International Development Agency</td>
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<tr>
<td>CSIS</td>
<td>Centre for Strategic and International Studies, Jakarta</td>
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<tr>
<td>CSP</td>
<td>Country Strategy Paper</td>
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<td>DS</td>
<td>Department of Standards (Malaysia)</td>
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<td>EUD</td>
<td>EU Delegation in Jakarta</td>
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<td>EDB</td>
<td>Economic Development Board (Singapore)</td>
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<td>ETAT</td>
<td>European Technical Assistance Team</td>
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<td>EU</td>
<td>European Union</td>
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<td>Abbreviation</td>
<td>Full Name</td>
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<tr>
<td>MoFo</td>
<td>Ministry of Forestry</td>
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<td>MoH</td>
<td>Ministry of Health</td>
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<tr>
<td>MoI</td>
<td>Ministry of Industry</td>
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<td>MoMP</td>
<td>Ministry of Manpower</td>
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<tr>
<td>MMAF</td>
<td>Ministry of Marine Affairs and Fisheries</td>
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<tr>
<td>MoPW</td>
<td>Ministry of Public Works</td>
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<td>MoT</td>
<td>Ministry of Trade</td>
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<td>MoTr</td>
<td>Ministry of Transportation</td>
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<td>MOSTI</td>
<td>Ministry of Science, Technology and Innovation (Malaysia)</td>
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<tr>
<td>MRA</td>
<td>Mutual Recognition Agreement</td>
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<td>MS</td>
<td>Malaysia Standard</td>
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<td>MST</td>
<td>Metrology Society of Thailand</td>
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<td>MSTQ</td>
<td>Metrology, Standards, Testing and Quality</td>
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<td>NAFED</td>
<td>National Agency for Export Development</td>
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<td>NIP</td>
<td>National Indicative Programme</td>
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<td>NEM</td>
<td>New Economic Model (Malaysia)</td>
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<td>NIMT</td>
<td>National Institute of Metrology Thailand</td>
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<td>NMSP</td>
<td>National Metrology Strategic Plan (Thailand)</td>
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<tr>
<td>OIC</td>
<td>Organisation of the Islamic Conference</td>
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<td>OWM</td>
<td>Office of Weights and Measures (Thailand)</td>
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<td>PMC</td>
<td>Project Management Cycle</td>
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<td>PTB</td>
<td>Physikalisch Technische Bundesanstalt, Germany</td>
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<tr>
<td>QI</td>
<td>Quality Infrastructure</td>
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<td>RIA</td>
<td>Regulatory Impact Assessment</td>
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<td>SIRIM</td>
<td>Malaysia Standard Agency</td>
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<td>SME</td>
<td>Small and Medium sized Enterprises</td>
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<td>SPRING</td>
<td>Singapore Standards Agency</td>
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<td>SPS</td>
<td>Sanitary and Phytosanitary Measures</td>
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<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>SQB</td>
<td>SIRIM QAS Berhad</td>
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<tr>
<td>SS</td>
<td>Singapore Standard</td>
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<tr>
<td>STE</td>
<td>Short-term Expert</td>
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<tr>
<td>TBT</td>
<td>Technical Barriers to Trade</td>
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<tr>
<td>ToR</td>
<td>Terms of Reference</td>
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<tr>
<td>TREDAG</td>
<td>Trade Research and Development Agency, MoT</td>
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<tr>
<td>TEEAM</td>
<td>The Electrical And Electronic Association of Malaysia</td>
</tr>
<tr>
<td>TIC</td>
<td>Testing, Inspection, Certification</td>
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<tr>
<td>TISI</td>
<td>Thailand Industrial Standards Institute</td>
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<tr>
<td>TR</td>
<td>Technical Regulations</td>
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<td>TSP</td>
<td>EU-Indonesia Trade Support Programme</td>
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<td>USAID</td>
<td>United States Aid Agency</td>
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<tr>
<td>WTO</td>
<td>World Trade Organization</td>
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This Paper summarises the results of a project conducted in the period August – December 2010. The work was supported by the European Union. The background documents produced during the project can be obtained from the Team Leader, Dr. Peter O’Brien, E-mail: eqindon@gmail.com.
Indonesia is in a period of rapid economic growth in which exports play a major role. The country seeks to upgrade the value added of exports, expand the range of exports into more sophisticated products, and diversify into many foreign markets. These aims imply that it must have a well functioning Quality Infrastructure (QI) which can ensure that the processes and products which the country can export are able to comply with the increasing number of Technical Barriers to Trade (TBT) which can make entry into external markets difficult or even impossible.

An impressive range of technical laboratories and facilities, mainly though not entirely located in the public sector, already exist. Similarly, there are a large number of experienced and dedicated professionals working in these QI institutions. Funding for them, while always subject to the usual limitations, is on the whole quite good. Technical help from a range of foreign development partners, in Asia and in Europe, has been provided over many years and continues to encourage domestic improvements. Yet the institutions do not function as a system. Each tends to operate in isolation, with scarce evidence of sharing of responsibilities, policy making and operations. Furthermore, the QI institutions have but weak links with the private sector, whether that sector is considered as a supplier of QI services or as a demander of them.

The result is that, although in principle the Indonesian QI could make a major contribution, it is failing to do so. Serious problems exist in terms of: confused authorities and responsibilities; poor use of the considerable assets which the country possesses; ongoing competition among institutions, frequently exacerbated by efforts to gain influence even in areas where an institution does not have specific technical competence; and an approach to planning which contains an
unhealthy mix of inflated expectations and insufficient attention to the dynamic of international changes in the trade regulatory environment.

The urgency of making efficiency improvements to the QI structure, and thus realising the substantial benefits which come from harnessing the synergies inherent in a well functioning system, is due to the internal and external dynamics of the current situation of Indonesia. Internally, the exceptionally important moves towards much greater autonomy and decentralisation imply substantial risks that, at least during what is likely to be a prolonged transition phase, there will be significant problems in ensuring that the QI network operates even to its current level. Externally, Indonesia is faced with the fast moving TBT frontier, the very strong competition in its export markets (especially from some of its ASEAN neighbours), and the commitments and requirements, all of which are time bound, into which it has entered in ASEAN, in the WTO, and to an increasing degree through bilateral trade and cooperation arrangements.

In short, the country has now entered a period of major opportunities but also of major risks. Standing still, or continuing “business as usual”, is not an option. Either a concerted effort is made to register improvements in line with agreed policies and approaches, or there is a strong likelihood that things will go backwards.

The focus of the paper is on how to make those improvements. More specifically still, the focus is on what can be done by the QI institutions themselves, without waiting for high level political and policy decisions. A number of those decisions are in fact very necessary. Indonesia has no coherent trade policy; it has no quality policy; it has conflicting institutional mandates, some of which can only be dealt with through high level decisions; it has civil service regulations which are inimical to making the best allocations of technical staff; it has pricing policies for the provision of QI services which significantly limit the possibilities for QI institutions to develop the scope of their work.
The need for such decisions is highlighted by the change processes which have taken place, over the last several years, in some of Indonesia’s ASEAN neighbours (and competitors). Countries such as Thailand, Malaysia and Singapore, have recognised that total engagement with trade and investment (including significant foreign investment) is a powerful way of reducing poverty and enhancing incomes across the board. These countries have opted for QI structures where maximum use is made of broad public and private partnerships, in which the entities are encouraged to offer the services which they are best suited to provide, and to offer them at competitive prices and delivery conditions. Corporatisation of previously state enterprises, a process through which some public ownership and control can be retained (to ensure that desirable social goals are met), while creating the space for management in line with full efficiency requirements, has been systematically adopted.

Ministries in these countries, while still having some regulatory functions (though these too are more and more in the hands of semi public bodies), have focused on providing policy and oversight for the corporatised entities. There is, in other words, substantial separation of policy makers, regulators and operators (QI service providers). These shifts have been made while placing strong emphasis on developing relations with the private sector, so that it plays the fullest part possible in the system. Each country, of course, has had its own problems to meet, each country has been following the path for well over a decade, and in every instance there remains much to be done. But the critical point is that a vision exists of a structure where all parties are participating and collaborating to the full. Successful QI is a collaborative venture, not a competitive struggle.

The paper argues that the QI institutions can set themselves targets which stem from the fundamental technical need to provide traceability. To achieve traceability, and the technical competence which must underpin it, the institutions must begin to share information at all levels. Through a carefully designed and implemented process of information sharing, the institutions will begin to work together to enhance system efficiency. As that increases, with private sector QI service providers participating in the process, the real investment needs of the system will become apparent.
As with any examination of a system, the information sharing will reveal where the “blockage points” are, and suggest how they can be overcome. Information products can likewise be made available through this process, products of direct value to Indonesian private producers and exporters, as well as potentially to foreign buyers and importers. The information can also take Indonesian enterprises into a still more challenging field, that of research and development. As a huge, natural resource rich economy, which is currently obtaining exceptionally high prices for its exports of raw materials, Indonesia has traditionally not been strongly committed to research and development. In the future, that will almost certainly have to alter. The information base on which innovative activities can be developed will draw on many sources – and one of them should be the information in the QI system. After all, standards (mandatory and voluntary) embody the latest thinking on what technical criteria processes and products should embody. Hence that information should be publicly available, and utilised to the full.

None of what is proposed here is undertaken for its own sake. QI should not be a closed world ruled by technicians. A QI exists to provide a service, which ultimately is there to encourage the growth and development of the economy of Indonesia and the welfare of its people. The majority of firms in the country are domestically owned, small and limited in their resources. But these firms are often connected to larger entities, through supply chains and sub contracting networks. Traceability requires that these firms also can provide the proper standard of products and that their production processes are consistent with the norms. In this sense, the QI institutions have the possibility to make a powerful contribution to the welfare of Indonesia and to its prosperous future. The time to seize that possibility is now.
I.1 Macroeconomic Performance and the Trade Challenge

Indonesia has entered a period of rapid economic growth. The projected rate of expansion, as estimated in the August 2010 Draft Budget Statement for 2011, is 5.8% for 2010, with acceleration in subsequent years to 6.3% in 2011, up to 6.9% in 2012, 7.4% in 2013, and 7.7% in 2014. These expectations are underpinned by a recent improvement in the balance of payments and foreign exchange reserves (which now stand at the equivalent of some 6-7 months of imports at normal rates), and a relatively stable exchange rate as measured against a basket of relevant currencies. Bank Indonesia, the country’s Central Bank, is committed to maintaining stability in both the exchange rate and the rate of interest over the coming years.

In order to achieve and sustain this impressive performance, Indonesia must strengthen its situation with regard to regional and international trade. Currently, the ratio of trade to GDP is approximately 25%, which is noticeably lower than the figure for most other ASEAN countries. Moreover, the composition of that trade is strongly biased towards primary or relatively unprocessed (low value added) products. In those products, Indonesia is subject to powerful competition in all markets (EU, ASEAN, Japan, North America and others) from several fellow ASEAN members and other Asian countries. For example: in agricultural products, including food and fisheries, there is competition from Thailand, Vietnam, India and others; in textiles, Thailand, China, Korea and India are important international traders; in clothing, Vietnam and Philippines are significant; while in manufactured products, such as telecommunication equipment, Malaysia, Thailand, China, Japan and Korea are all powerful players.
Indonesia is therefore faced with a significant trade challenge if it is to sustain its fast overall economic growth. That trade challenge, however, is by no means simply a matter of overall volume of trade. It is also, and still more importantly, a matter of the quality and standards of goods to be exported. All of the countries cited above, namely the ASEAN and other Asian competitors of Indonesia, are engaged to a greater or lesser extent in constant upgrading of the value added and quality dimensions of their exports. That upgrading occurs for two reasons. One is that the higher the valued added component of exports, the greater the net returns from those exports. The second reason is that relentlessly rising standards in export markets, especially the EU and other OECD members, directly and indirectly obliges traders to improve the quality of what they export.

I.2. Technical Regulations Abroad and Market Access for Exports

In many product fields, there are legally mandatory Technical Regulations (TR) which must be met if the products are even to gain entry into the markets. These TR exist in order to protect the health of the population in the importing market, public safety, security and the natural environment. Provided they meet certain scientific conditions and are designed in ways which seek to minimise trade impacts, such TR are perfectly acceptable under the WTO agreements on Technical Barriers to Trade (TBT) and Sanitary and Phyto-Sanitary (SPS) arrangements. Hence, before an Indonesian made product can go on sale in foreign markets, it must be certified to be in conformity with the applicable TR in those markets. That certification must be done by entities of recognised impartiality and competence. These entities, in turn, must be accredited to perform their functions by bodies which themselves meet a series of internationally recognised conditions.

It is apparent, therefore, that there has to be in place in Indonesia a system which can provide these technical services to the required technical and objectivity levels. Over the years Indonesia has of course established, essentially via the provision of publicly owned services, a wide ranging quality infrastructure (QI) designed essentially to meet internal needs. Those needs
Indonesia’s Export Quality Infrastructure

include Indonesia’s own internal TR and a number of elements related to standardising products and services sold in the domestic market. As the world’s fourth largest country, that domestic market oriented development process in QI is perfectly normal and necessary. But since the 1990s, most of the world’s largest developing countries (China, India, Brazil) which had similarly created systems which were domestic market oriented, have been raising the profile of international trade in their economies, and thus begun adapting their QI such that it becomes a system which serves the growing international dimensions of their economies. Indonesia is now engaging in such adaptation of its own system towards an internationally compatible one. That system can be referred to as Indonesia’s Export Quality Infrastructure (EQI).

I.3. Voluntary International Standards and Trade

In developing an EQI, TR are not the only major hurdle which Indonesia’s exports must overcome. To an increasing extent, and across more or less the whole range of traded goods and services, exports should seek to meet voluntary international standards. These are not legally binding, but they are commercially critical. These standards, which apply not only to actual products made and services provided but also to management structures used to conduct a business, are set up through transparent processes in which technical experts from many countries work together in order to formulate performance conditions and characteristics which products and services should meet in order to provide the most suitable customer satisfaction.

The leading bodies in which standards formulation takes place include the International Standards Organisation (ISO), the International Electrical Commission (IEC), the Codex Alimentarius of the FAO and WHO, as well as other entities. Indonesia is represented in them by appropriate government Ministries and personnel. In every case the aim is for there to be full consensus among all parties on the nature of the standard, although there are some instances where, usually for special technical reasons, one or more countries may reserve its position with regard to the proposed standard.
I.4. The Increasing Linkage of Voluntary Standards and Technical Regulations

To an increasing degree, there is integration of such standards with TR. In other words, TR themselves frequently make reference to international standards which apply in the field concerned. In this sense, therefore, what is in a standard effectively becomes obligatory because it is incorporated in a TR. Indonesia and all other countries are thus in a situation where, to a growing degree, TR and international standards must be looked at as integrally related parts of the same whole. The EQI, and improvement of it, must be viewed in this perspective.

I.5. Private Standards and Market Access for Exports

In the rapidly changing world of quality, there is a third dimension, in addition to TR and international standards, which nowadays is acquiring ever greater importance, especially in fields such as food products, information technology and some others. That dimension is usually called Private Standards. These are standards which are not established in the forums of the international entities mentioned above, but instead are formulated by groupings of important producers and traders in specific fields. The standards are called “Private” because they are not worked out through, and according to, the processes set in the international bodies. These standards are of course voluntary and are perfectly legal. They matter because the groups which establish them often include major international wholesale buyers, and major retail chains in key consumer markets. This is particularly clear in a number of areas of food products, clothing, electronics, furniture and elsewhere.

A moment’s reflection suggests that, unless an exporter also meets the standards which these buyers consider important, the practical chances of successful export are likely to be small – even though all applicable TR and international standards have been met. This is because actual access to the marketing and distribution chains inside leading markets is very difficult to obtain unless the exporter is perceived by the key buyers as meeting their standards. The prospects of entering markets through some small “independent” buyers are in practice often minimal.
For companies in Indonesia which are affiliates of multinational enterprises, private standards might not represent any particular problem. Given that the multinational enterprise may itself be part of groups setting private standards, the affiliates will automatically meet them through the application of the multinational’s own corporate quality policy. But for Indonesian owned firms, the challenge will be far greater. It follows that an EQI system, if it is to offer a full range of top level services to users (essentially Indonesian firms), must also keep the expansion of private standards in mind. This is additionally so since, over time, certain of the private standards may well come to be part of international standards.

I.6 EQI and the Future of Trade

As it enters a period of exceptional economic growth, Indonesia is therefore faced with a major requirement with regard to international trade. It must simultaneously expand total trade, raise the value added element in that trade, and be equipped to provide ever more sophisticated support services in EQI to companies producing in the country. Those services must be put on an equivalent footing to, and be consistent with, the standards employed in top quality markets. A successful response to that challenge calls for a concerted effort encompassing technical improvements, managerial improvements, capacity building, resource allocation improvements, and better systemic governance. These changes will almost certainly require underpinning from modifications to regulatory systems in Indonesia, a higher profile being given to awareness building about “quality culture”, and enhanced complementarities of public and private participation in EQI.

These are daunting challenges. In such a large country as Indonesia, where federal and provincial government bodies have varying jurisdictions, effective response to those challenges implies a careful process of consensus building which almost certainly can take place only over an extended period of time. Sequencing of actions needs to be done such that the more pressing and urgent trade demands are met, while appropriate balances in the system are maintained. The accumulation of skills, both for individual institutions and at the systemic level, can occur
only if there is sufficient stability of institutional mandates and staffing. Moreover, changes in EQI in Indonesia itself inevitably are to some degree conditioned by changes in ASEAN, and internationally (in export markets such as the EU, and relevant trade bodies such as WTO).
The overall objective of the project was to contribute to a further integration of Indonesia into the international trade system, through the upgrading of Indonesia’s EQI system so that it becomes compliant with international standards. The specific objectives of the study were:

- to analyse the institutional arrangements related to Indonesia’s EQI system and the decision making processes leading to trade policies in this area.
- to propose a vision for an improved Indonesian EQI system, and a strategic roadmap to reach it, in consultation with different stakeholders.
- to mobilise stakeholders into the endorsement of the vision and roadmap.

The study was in no sense (technical, managerial, financial, social responsibility) an audit of individual institutions. It was a system focused analysis seeking to assist in the search for overall improvements in Indonesia’s EQI. It sought to locate gaps, duplication, weaknesses of coordination, and other systemic issues in EQI. It tried to see whether there are any “nerve points”, or critical obstacles, which, if overcome, could lead to significant positive impacts on systemic efficiency, better utilisation of the system by traders, and on to improved exports and export earnings.

In most systems, there are elements which may be less obviously present but may in fact have a powerful effect on the operation and orientation of the systems. Those “latent” actors may include other key Ministries, such as the Ministry of Finance, key policy making structures, especially with regard to trade policies, and of course the pressures (and often positive incentives for improvements) which come from Indonesia’s active membership in regional (ASEAN) and
international (for example, WTO) organisations. Hence, any attempt to grasp what the system actually looks like and discover how it in fact functions (as prerequisites for arriving at sensible and realistic paths of improvement), must take this broader perspective of what the Indonesian EQI is. The project tried to make as much progress as possible in this direction also.

The process of mobilising stakeholders will almost certainly be gradual – meaning spread over a significant time period. It is necessary in order to refine and mature the findings of this project. Endorsement itself will come later, as a product of a consensus building effort which should be continued. At that later stage, EQI would hopefully also have a higher profile in the economic arena, and perhaps receive backing at top political levels.
III. ACTIVITIES AND METHODOLOGY

III.1 Activities

The study was conducted through a series of steps, each of which culminated in a presentation of information obtained, analysis conducted, and proposals for the next phases.

Step One: Institutional Mapping and Gap Analysis

This focused on an assessment of the institutions involved in the EQI and of the relationships among them.

The overall map was conceived to contain four principal kinds of institutions:

- Indonesian Public Service Providers.
- Indonesian Private entities (which include both service providers and business firms and associations which use the EQI services).
- Regional and international institutions which seem to play an active role with regard to some aspects of Indonesia’s EQI.
- External donors and technical assistance service providers, a grouping in which the EU is included.

With regard to government ministries, there are often several relevant departments, or parts of the institution, which occupy important roles in the system. Hence the total number of actors on the map is more than appears just from a count of institutions. In practice, the total number extends to well above 50.
**Step Two: Vision for Improvement**

That Vision was designed based on the emerging results from the institutional mapping and gap analysis, the proposals and ideas being received from the persons and institutions interviewed, the insights gleaned from the field visits to other ASEAN countries and related comparative work and the assessments of what would represent a realistic, achievable and valuable set of targets at which the upgrading process could aim.

**Step Three: Roadmap for Change**

The Roadmap seeks to spell out the various milestones that will have to be achieved by defined points in time and sets out how these milestones are to be met, including the institutional, policy, financial and other possible implications of the process.

**III.2 Methodology**

The work relied primarily on a combination of:

- interviews with selected institutions (public and private, national and international) in Indonesia and some other ASEAN countries.
- website research directed at supplementing the information base (especially with regard to many technical details concerning TR and standards in major export markets affecting Indonesian firms, practices and processes to upgrade EQI which are being followed in other countries, and details of technical assistance programmes being managed and supported by donors other than the EU).
- analytic studies which shed light on the possible costs and likely returns from improving EQI.
- three workshops that were conducted with Indonesian stakeholders of various Government Institutions with the aim to discuss and consolidate the findings and conclusions in a process oriented manner. The first workshop focused on the mapping, the second on the vision and the third on the roadmap for Indonesia’s EQI.
In the time available, comprehensive benchmarking analysis of the system as such could not be undertaken. Nevertheless, some comparisons of Indonesia’s EQI situation were possible, particularly with regard to other ASEAN countries. When a more perfected mapping/gap analysis is finalised, it should then be possible to assess the system against standard criteria for network analysis, including coherence, coordination, inclusiveness, efficiency and other indicators.
IV. EXPERIENCE OF OTHER ASEAN COUNTRIES

IV.1 Choice of Countries

In order to analyse the ASEAN level strategies for enhancing EQI systems across the region and assess how an Indonesian strategy would best be linked with the work at regional level three other ASEAN countries, Singapore, Malaysia and Thailand, were visited. Interviews with key institutions, public and private, were conducted on the basis of questionnaires sent in advance to all groups interviewed. Documentary research, based on websites and materials received from the institutions, was extensively used. Following the visits, regular communication with the groups visited has been made to ensure that conclusions and findings are consistent with the situations in each country.

The criteria for country choice were:

- Current level of EQI development
- Similarities of export structure to that of Indonesia
- Market orientation of exports (EU, US, ASEAN, Japan)
- Whether or not a continuous improvement process for EQI is known to be in progress

Singapore: It has a world class EQI which is continuously upgraded in accordance with the highest international standards. It is seeking to supply an exceptionally wide range of markets.

Malaysia and Thailand: Intermediate level of EQI. These countries exhibit important similarities in their trade structures with Indonesia, hence consideration of their current position and future perspectives can be valuable as an indication of what challenges may face Indonesia from regional competitors. Thailand has also been following the “single trade window” approach, which Indonesia started to implement in 2010.
The purpose was to obtain some insights into efforts which have been made, and are being made, in these three countries to develop their QI with the aim of increasing high value added (HVA) trade.

**IV.2 Their Economic Context**

During 2010, Indonesia has experienced somewhat slower overall economic growth than its ASEAN neighbours. For trade it has shown larger rises than all of them in imports, along with just above average export increases (the August 2010 data for Indonesia, covering the first 8 months of 2010, do however show a rise of 40% as compared with the same period in 2009).

The situation in trade can be summarised as follows:

- Indonesia has a much lower trade to GDP ratio (25%) than any of the countries visited. Since the world’s largest countries always have lower shares of trade to GDP than the rest, this fact in itself is not surprising. But the magnitude of the gap is substantial. Singapore’s ratio is well above 100%, Malaysia is about 80% and Thailand roughly 65%.
- Singapore, Malaysia and Thailand all figure well into the world’s top 30 exporting and importing countries (2009 WTO data); Indonesia is ranked 30 for exports.
- The product breakdown of exports shows that manufactures account for approximately 75% for Malaysia, roughly 50% for Thailand and slightly lower for Singapore (where services figure prominently in the total). Indonesia compares favourably with these ratios. Cumulative data for the first 8 months of 2010, when the total of all exports reached almost $100bn, show the industry share to be over 61%.
- Processed agricultural products are a significant part of export trade for both Thailand and Malaysia, while fish and seafood exports are strong in Thailand.
- All countries have an increasing share of exports going to the Asia Pacific region, with EU countries playing a quite important role as destinations for exports from Singapore and Thailand.
The economies differ markedly also with regard to Foreign direct investment (FDI). It accounts for a large share of total investment in both Singapore and Malaysia, and is also quite significant in Thailand. For Indonesia, FDI is far less significant, though recent developments suggest that there may be substantial manufacturing investments from other Asian countries (China, Korea, Japan) in the near future. The FDI position affects export trade very strongly since many of the investing firms sell large shares of their output abroad. These firms also usually act as “self contained circuits” for control of quality of exports.

IV.3. Core Overall Findings on EQI in Singapore, Malaysia and Thailand

While each of the 3 countries visited is distinct, there are several features which can be found in all of them:

1) There is **strong awareness**, in both the public and private sectors, of the importance of quality issues as critical to enhanced competitiveness.

2) **QI is closely linked with clearly articulated national plans for economic growth and development.** This is reflected in the elaboration of national strategies for the improvement of the various elements of QI. For example, Thailand has a National Metrology Strategy covering the period 2009-2017 which focuses on Chemistry and Biology, in line with the main aims of economic development in the country.

3) **Linkages with the private sector are strong.** It is much more than a “token” stakeholder in the formulation of policies, the development of standards and similar things. The private sector is also a major operator in many dimensions of EQI. For instance, there are some 140 calibration laboratories for scientific metrology in Thailand, of which the large majority are private and Thai (some are owned by Japanese and Singapore interests). In Malaysia the market for provision of Testing, Inspection and Certification Services (TIC), which is growing in value at approximately 15% per annum, is highly competitive. SIRIM is one of the participants, but the large majority of the 15 or so firms are private (mainly affiliates of international companies). Prices for services offered can be set freely by all competitors, including SIRIM. One valuable result of the market approach has been
that the firms are tending to specialise within the TIC environment, so that higher quality outcomes are achieved.

(4) *The institutional landscape reflects very sharply the orientations towards growth, the private sector and competition. Government Ministries are firmly placed as coordinators and policy makers – they are not operators.* Key institutions for QI (SIRIM in Malaysia, SPRING in Singapore, TISI in Thailand) function according to business principles. While the degree of government ownership varies in each case, the management and decision taking is done along private sector lines.

(5) *Partnerships of public institutions and private firms designed to tackle critical QI issues are quite common.* In Thailand FXA, a private Thai company made up of software experts, has designed a computer based traceability system which allows complete identification at all stages of the production and distribution chain for a wide range of food products. The company works in harmony principally with two ministries (Agriculture and Public Health), and to a lesser extent with two others (Industry and Transport). The traceability system links together the data bases which each of the ministries was previously using for its own purposes only.

(6) *The current institutional structure has taken a number of years to build, and changes continue to take time.* In all 3 countries, the efforts to create the present set of institutions, including their legal status (corporatized bodies, quasi public institutions and other variants) have gone on for at least 10 years. There are no “quick fixes” for improving EQI.

(7) *The institutions all have special programmes to assist SME.* In one instance (MATRADE in Malaysia), the institution explicitly organises training for SME in the various aspects of MSTQ. Every country recognises, however, that reaching out to SME is very difficult. None of the countries considers that its present level of outreach is anywhere near being satisfactory.

(8) *Public and private actors working together seek to be proactive and not reactive.* The Standards institutions provide a certain amount of “early warning” information about complex new processes of Technical Regulation which are being developed and introduced
in export markets (for instance, all 3 countries have been working, through public and private channels, on REACH ever since the beginning of the process in the EU). Where reactivity can hardly be avoided, such as the avian flu (HNI) problem with poultry some 2 years ago, major measures have been taken very quickly. In Thailand, which is the world’s second largest exporter of processed poultry, the EU Delegation assessed the rapidity and comprehensiveness of the Thai response to be exemplary. It was notable that the authorities had the power and the means to implement drastic safety measures. They also followed up immediately by requesting EU to assist in the speedy establishment of the necessary testing and inspection devices within Thailand to ensure the country is well prepared for any future massive alerts of this kind.

(9) “Dual standards”, meaning that products sold domestically may not have the same quality as those sold in export markets still exist to some extent in Malaysia and Thailand though this phenomenon has more or less been eliminated in Singapore. The incidence of major safety problems within domestic markets in these countries does not seem to have been significant in recent years, though they are not entirely absent.

(10) The 3 countries all have strong representation abroad, through embassies, trade missions, investment promotion offices, private business chambers and other links, which contribute significantly to knowledge about developments in export markets. A premium is demonstrably given to obtaining and using information as a vital element in the production and trade effort.

(11) Active participation in international MSTQ bodies is increasingly accorded priority. There seems to be keen awareness of the possibilities for these countries to become “standards makers” and not simply “standards takers”. A powerful example is the explicit focus of Malaysia on becoming a world leader for Halal products (which cover a very wide range of items).

A company has been formed (the Halal Development Corporation, HDC; under the oversight of MITI) with the objective of becoming the international pace setter in this field. Given that the estimated number of Halal consumers in the world is of the order
of 1.6 – 1.9 bn, and estimates of current annual global trade in Halal products exceed $2 trillion (more than 100 times the exports of Indonesia), the potential is enormous.

A strong standards focus has been given to the Halal initiative. At the Organisation of Islamic countries (OIC) meeting in April 2009, Malaysia was assigned the lead role in development of Halal standards. Malaysia Standard (MS) series 1500 is now the landmark standard in this area. Special focus has been given to efficient certification in this field. As of mid 2010, the process which had previously taken on average some 8 months had been cut to one month. Six international companies operating in Malaysia have been certified.

(12) **Singapore, Malaysia and Thailand give importance to EQI matters in their trade negotiations.** In earlier years, the WTO process was dominant, and in that period the countries were all essentially smaller players. But now the swing is firmly towards bilateral agreements (and, to a lesser extent, regional arrangements).

Singapore, with its advanced infrastructure and clearly stated ambition to become a global hub for innovation and high quality, puts agreements relating to EQI (such as Mutual Recognition Agreements, MRA) as an essential part of any bilateral agreement. Malaysia and Thailand, which are not in the same situation as Singapore from the perspective of overall development, adopt less ambitious targets but still seek recognition through bilateral arrangements with leading partners.

(13) **Foreign assistance is no longer a significant contributor to development of QI.** All 3 countries now rely to a very large extent on their own resources. Among foreign partners, Japan appears to be the most active. Its efforts seem to be directed mainly at assisting the development of “complete chains of traceability” in food and fisheries. The Japanese assistance also makes use of both public and private groups, especially for upgrading quality standards in the industrial sector where Japanese companies have significant FDI.
V. MAPPING OF THE INDONESIAN EQI INFRASTRUCTURE

V.1. The Features of a Sound EQI

Mapping and gap analysis of Indonesia’s EQI infrastructure focuses on an assessment of the institutions involved in the EQI and of the relationships among them.

Public and private sector are linked in the entire value chain with both sectors having roles and responsibilities to meet the requirements of international markets.

![Diagram: Four chains: Public and private sector responsibilities](image)

**Figure 1**: Four chains: Public and private sector responsibilities

The diagram suggests the fundamental point: **Matching the Chains leads to a Quality Efficient Economy (QEE).** If the chains fit together, they will produce
3 KEY CHARACTERISTICS

- No Gaps Of Communication Or Cooperation Between The Chains – Each Works To Help The Others.
- No Duplication Of Authorities – Responsibilities Are Clear.
- No Gaps In Any Chain – They Are All Seamless.

In any system which has these three characteristics, there will be three key outcomes

3 RESULTS

- Cost Reduction.
- Confidence.
- Competitive Strength – at home and abroad.

V.2. Government Structure and EQI

For more than a decade, Indonesia has been going through major political reforms, which are not yet entirely completed and implemented.

The Government of Indonesia did establish, however, a National Development Plan RPJM 2005 – 2025 to be implemented in 4 phases, each of 5 years. The current step RPJM 2 (2010-2014) focuses on the “Consolidating the reformed Indonesia, increasing quality of human resources, capacity building in science and technology, strengthening economic competitiveness”

The goal to improve the structure of EQI fits therefore perfectly well into the current phase of national development.

Improving the quality of Indonesian government institutions is not easy due to several factors.

1) Institutional compartmentalization and fragmentation.
2) Insufficiency of system governance and strategic planning.
3) Constraints imposed by civil service rules on allocation of human resources.

The complexity of the political situation has contributed to a strongly risk averse behaviour
of institutions and individuals. Any pronounced moves towards change on the part of specific actors renders them vulnerable to serious criticism, while at the same time not offering them a prospect of significant rewards for the risks they are taking. In other words, there are few “institutional incentives” favouring change.

The Autonomy Process adds further constraints to the system:

- In recent years, and in many fields, authority as well as operational responsibilities are being devolved to regions. This process appears irreversible.
- It places Indonesia in a situation similar to other major countries in the world which have federal structures, for example India, USA, Brazil, South Africa.
- A key question for EQI is therefore: what authorities/ responsibilities should remain at national level, and which ones should be at regional level?
- Coordination across the different levels becomes a crucial factor in the development of EQI.

V.3 Quality Infrastructure

A QI is based on a number of components. These components are closely related and form a network whose logical links are based on a technical hierarchy. The following diagram sets out the linkages. It can be viewed in three segments. The central part (the “spine”) shows the core components which should exist in a fully articulated national system (and which do exist in Indonesia). To be accepted internationally, and therefore provide the support to exports which national producers and traders require, the spine has to be connected to the key international institutions – these institutions are shown on the right hand side of the diagram. The whole system exists, however, to serve producers and traders. According to the product (and service) sectors they work in, and the processes they use, these firms form part of their own value chains. The true traceability of standards has to be assessed in those value chains. They are represented schematically on the left hand side of the diagram.
The national network must be geared to international requirements. It is only if these requirements are met that there can be an assurance that international trade of goods and services will not be impeded by TR. A picture of the fully developed Compliance/Competitiveness system is shown in the following diagram.
The National QI is based on four pillars: Metrology (M), Standardization (S), Testing (T) and Quality (Q), of which the last two elements can be combined to Conformity Assessment (CA).

**Metrology**
- Calibration laboratories
- Metrology in Chemistry
- Verification System (legal metrology)

**Standardization**
- Voluntary National & international standards
- Technical Regulations (TR). In Indonesia these are usually referred to as Standards Wajib.

**Testing & Quality (Conformity Assessment)**
- Testing, Analysis & Inspection
- Accreditation & certification

*Source: PTB*
Improving a country’s capacities in metrology, standardization, testing, quality assurance, accreditation and certification are at the core of improving the ability to export high quality, high value added products.

It is apparent, therefore, that there has to be in place in Indonesia a system which can provide these technical services to the required technical and objectivity levels. Over the years Indonesia has of course established, essentially via the provision of publicly owned services, a wide ranging quality infrastructure (QI) designed essentially to meet internal needs. Those needs include Indonesia’s own internal TR and a number of elements related to standardising products and services sold in the domestic market. As the world’s fourth largest country, that domestic market oriented development process in QI is perfectly normal and necessary. But since the 1990s, most of the world’s largest developing countries (China, India, Brazil) which had similarly created systems which were domestic market oriented, have been raising the profile of international trade in their economies, and thus begun adapting their QI such that it becomes a system which serves the growing international dimensions of their economies. Indonesia is now engaging in such adaptation of its own system towards an internationally compatible one. That system can be referred to as Indonesia’s Export Quality Infrastructure (EQI).

V.3.1 Metrology

The word Metrology comes from the ancient Greek words metron (measure) and logos (study of) and is the science of measurement. Metrology covers all theoretical and practical aspects of measurement, a set of operations to determine the value of a certain quantity.

Both, scientific & technical metrology as well as legal metrology are the basis for technical development, trade and business. Without a reliable metrology network that is traceable to international metrology it is not possible to create confidence to conformity assessment.
Metrology in Indonesia is carried out by several Government Institutions based on presidential decrees and a Legal Metrology act. The institutions represent Indonesia in the relevant international metrology organizations.
The Institutions dealing with scientific metrology in Indonesia are: KIM-LIPI, RC Chem –LIPI & BATAN. Located within the MOT, DIMET is in charge for legal metrology. The situation of these institutions, as assessed by the consultant team, is set out in the following paragraphs.

V.3.1.1 Scientific & Technical Metrology: An Institutional Assessment

KIM-LIPI

Research Center for Calibration Instrumentation and Metrology Puslit KIM-LIPI was appointed as custodian of national standards by presidential decree in 2001 replacing decree from 1989. It supports the National Accreditation Committee KAN with inter-comparison tests on calibration in regards of serving as reference laboratory and with the evaluation of results. Internationally, KIM participates in inter-comparison tests provided by ADMP on an annual basis and has organized one itself. It follows and cooperates with APMP on a regional basis and BIPM on international basis.

Observations on KIM:

- KIM is in charge for scientific metrology but DIMET-MoT (Direktorat Metrologi) still holds the physical national standard for mass but does not have the facilities to use it for traceability; KIM serves as reference for mass in Indonesia.

- KIM has budget constraints in regards to purchase of equipment and maintenance of facilities

RC Chem-LIPI

Research Center for Chemistry RC Chem –LIPI is the appointed Indonesian custodian for chemical reference standards. (RENSTRA LIPI 2010-2014).

Observations on RC Chem-LIPI:

- RC Chem –LIPI does, at present, not have the assets (buildings, equipment) and capability to fulfill the designated task.

- RC Chem –LIPI is supported by PTB. No specific project has yet begun. It is expected that any process to put RC Chem-LIPI in a position to manage chemical metrology would take 8 – 10 years.

- RC Chem –LIPI is planning to cooperate and coordinate with BBIA– MoI, POMN-
Indonesia’s Export Quality Infrastructure

BPOM, PPMB-MoT and NCQC-MMAF in order to establish Chemical Reference Materials for Indonesia.

• RCChem – LIPI is lacking facilities, HR and organizational structure

V.3.1.2 Legal Metrology: An Institutional Assessment

Direktorat Metrologi DIMET-MoT is in charge for LEGAL metrology in Indonesia based on the Legal Metrology act no. 2-1981 (an Act of which revision has begun, and may be completed by 2013). Its responsibilities are:

• Policy development on legal metrology.
• holds the Indonesian MASS reference standard.
• does standards policy development.
• type approval for measuring instruments used (made or imported) in Indonesia (OIML).
• verification & re-verification of measuring equipment.
• Market Surveillance on metrology equipment used for trade.
• follow and cooperate with OIML on international basis.

Observations on DIMET-MOT:

• The role of DIMET in policy development appears to be unclear.
• Every single measuring device is verified by DIMET-MoT whether it is used for legal metrology or not.
• It cannot trace those devices which are used for legal metrology.
• It is supposed to handle more than 60 million devices at present, and this number is growing annually at a significant rate.
• As an example: there are currently about 38 million KWH meters in use. KWH meters are supposed to be re-verified every 10 years – 3.8 million per year. There is also a substantial amount of water meters, taxi argos, balances etc.
• Yet there are currently only 835 metrology inspectors to carry out the task. And these inspectors are employed by the regional governments, not by MoT.
• All equipment used for legal metrology must be verified and physically calibrated by
DIMET-MoT and/or the DINAS. Calibration certificates issued by KAN accredited calibration laboratories are not accepted as reference.

**BATAN**

**Center for Nuclear Energy Development BATAN** was established through Presidential Decree No. 103, 2001 on BATAN & BAPETEN Tasks, Function, and Responsibility and through President Decree No. 64, 2005

BATAN is in charge for NUCLEAR ENERGY

**V.3.2 Standardisation**

It is the process of establishing technical standards that is carried out based on consensual agreement of the interest groups affected by the given issue. A standard is a document that establishes uniform engineering or technical specifications, criteria, methods, processes, or practices in accordance with the current state of technology.

The main functions of standardization are to

- eliminate technical obstacles to trade.
- enhance technical cooperation.
- increase suitability of products, systems and services.
- reduce cost for producers, suppliers and consumers.

Standards are, per definition, voluntary but their application can be made mandatory by national laws or (technical) regulations. Standards are used to implement guidelines, a design, or measurements in order to obtain solutions to an otherwise disorganized system. Technical regulations are implemented to protect life, health, property and the environment.

The field discussed here includes Voluntary National & International Standards and Technical Regulations (Standards Wajib). The linkage of the national and international elements is depicted in the following diagram.
Figure 6: Standardization and technical regulations

Source: PTB

V.3.2.1 Standardisation: The Institutional Situation in Indonesia

Figure 7: MSTQ-Standardization in Indonesia
V.3.2.2 The Standards Institutions

National Standardization Body BSN

National Standardization Body was established by Presidential Decree No. 13 of 1997, later amended by Presidential Decree No. 166 of 2000 regarding Position, Duties, Function, Authorities, Organization Chart as well as Working Conditions of Non-departmental Government Institutions. A further modification by Presidential Decree No. 103 Year 2001 made BSN a non-departmental government institution with main responsibility to develop and conduct standardization activities in Indonesia. This agency was established to replace the function of National Standardization Council – DSN. In performing its tasks, the National Standardization Agency refers to the Government Regulation No. 102 of 2000 regarding National Standardization which set out its responsibilities:

- Assessment and preparation of national policy in the field of standardization.
- Defining Indonesian National Standards (abbreviated SNI).
- Organising national and international collaboration in the field of standardization.
- Provide information systems on national and international standards.
- Serve as WTO-TBT notification and enquiry point.

Ministry of Manpower Responsibilities

- Prepare SKKNI (Standard Kompetensi Kerja Nasional Indonesia) for professional competence.
- SKKNI (Standard Kompetensi Kerja Nasional Indonesia) on professional competence for selected positions (e.g. operators, bank directors).
- SKKNI are voluntary but may be made mandatory by regulating authorities.

V.3.2.3 The Regulatory Bodies

The regulatory structure and the specific matters regulated by each Ministry/Institution, are described in the following diagram and the text below
The Indonesian Government Institutions involved in the field of technical regulations and their authorities and responsibilities are:

**Ministry of Trade (MoT)**
- TR for trade standardization (labeling)
- TR for quality control of export/import products. (registration NPB & NRP)
- TR for Consumer Protection

**Ministry of Marine Affairs & Fishery (MMAF)**
- Fish and seafood products in Indonesia, currently 81 regulations
- Defines good practices in fisheries production and distribution
- EU-appointed as “competent body” for fishery products

**Ministry of Agriculture (MoA)**
- Non processed products (raw sugar, cocoa bean, raw rubber, horticultural product, livestock)
- Veterinary control for animal origin food business
- National standardization system in agriculture
• Good Manufacturing Practices (GMP)
• Registration of fresh food of plant origin
• Food safety control of fresh food of plant origin at border point
• Good Agricultural Practices (GAP) for fruit and vegetables

BPOM (Agency for Food & Drugs)
• Legislation, regulation and standardization for pharmaceutical, cosmetic and processed food, contaminant, food additives and food labeling
• Licensing and certification of pharmaceutical, cosmetic and processed food industries

Ministry of Industry (MoI)
• Regulator for 22 industrial product sectors (3 more sectors are expected to be added in the near future) and the regulation of mandatory marking of products with the SNI label and the SNI number it refers to.
• Automotive
• Chemicals for construction material
• Chemical products and fertilizer
• Furniture
• Toys, sport equipment, house equipment
• Ceramics incl. glass
• Plastics & plastic products
• Ships & its components
• Various products, such as spectacles
• Foot ware, such as shoes and sandals
• Pulp & Paper
• Textile
• Paints
• Packaging (sub committee)
• Jewels
• Downstream Chemicals
• Machineries
• Electronic & electrical cables
• Airplane (not active yet)
• Food
• Beverages
• Metals
• Salt (in preparation)

Ministry of Transportation (MoTr)
• All means of public transport (goods & people)
• Vehicles operated in Indonesia

Ministry of Environment (MoE)
• Environmental issues such as waste water effluent, air emission (pollution), waste and hazardous waste, generated by production and products
• Installation and operation of waste incinerators

Ministry of Forestry (MoFo)
• Raw material from forest and timber plantation
• Sawn timber and plywood
• Sustainable Production Forest Management and Timber Legality Verification
• GOI – MoFo is negotiating a Voluntary Partnership Agreement (VPA) with EU

Ministry of Public Works (MoPW)
• Safety of buildings and constructions

Ministry of Manpower (MoMP)
• All kinds of pressure vessels (incl. gas tanks and steam boilers)
• Certification of selected operators (pressure vessels, forklifts etc.) and professions with reference to SKKNI (Standard Kompetensi Kerja Nasional Indonesia)

Ministry of Health (MoH)
• Quality of drinking water from wells and public water supply (PAM)
• Health facilities
Observations on the Regulatory Situation:

- As of December 1, 2010 there are 76 technical regulations listed on the BSN website, 20 from the Ministry for Energy and Mineral Resources on electrical installations, 38 from the Ministry of Industry on various industrial products and required labeling, 1 from the Ministry for Agriculture on sugar, 2 from BPOM on food coding and on sweeteners, 14 from the Ministry of Transportation on air traffic and 1 from Directorate General of Post and Telecommunication on standardization. The 76 regulations refer to 157 SNI and make these SNI mandatory.

- Only 4 of the listed technical regulations have a WTO TBT notification number.

- There are 2 different regulations on sugar, one from MoI (56). SNI 01-3140.2-2006 and one from MoA (12) 1. SNI 01-3140.1-2001. Since the SNI number is same with a different year, MoI refers to the revised version but the MoA regulation is still on the list.

- There is no Umbrella Law on Regulation nor is there a single Institution on Regulatory Affairs.

- The regulatory system is overlapping in many fields and is not transparent. The only exception is the Ministry of Marine Affairs and Fishery MMAF that is the sole authority for the entire value chain of all fishery products, wild catch as well as farming.

- The roles and authorities of central government institutions and local governments in the regions (Otonomi Daerah) is not regulated properly and leads to frictions.

- There is no separation of regulators and operators! Several GOI institutions operate in both areas.

- Market supervision is insufficient.

- Much stronger private sector involvement is required.

- Directorate Metrology (MoT) is the regulator for legal metrology but also the operator. It does not have the capacity to fulfill this task.

- The role of Direktorat IHHP– Industri Hasil Hutan dan Perkebunan of MoI appears to be overlapping with other ministries.

- All woods (wood, rattan, bamboo) harvested in forests are under the authority of the MoForestry. Woods that come from plantations are under the authority of MoA except teak.
• Certificates of origin for all kinds of wood (forest & plantation) are issued by MoF.

• In Jakarta there are 5 stations to check road worthiness of transport (bus, truck) vehicles but implementation is very weak.

• All products under Technical Regulations (SNI wajib) have to be registered by PPMB - MoT (sole authority) with an NPB number for imported products and an NRP number for local products. There are currently 57 TR (SNI wajib) registered with WTO. PPMB conducts registration based on conformity assessment performed by notified bodies (CAB) which are appointed by the regulators (MoI, MOA etc.). CABs must be accredited by KAN and they must be located in Indonesia.

• There is a government regulation that requires a recommendation from MoT to import finished goods. It is not clear what are the criteria to get this recommendation and what are the benefits for consumer protection.

• BPOM checks food products in retail packaging based on SNI and provides BPOM registration numbers.

• EXPORT: There is a list of 23 commodities (like Rubber, essential oils, cacao etc.) that have to be tested & certified (mandatory) for export, even though certification is not mandatory for domestic use See Keputusan Menperindag No164/MPP/Kep/6/1996 It is planned to bring cacao into the mandatory area also when it is used in the domestic market.

• BPOM prepares standards for processed food, contaminant, food additives and Food labelling (Health act).

NOTE: MoT recently made a new regulation on labelling – all products must have labels in Indonesian language. MoI and other ministries also create labelling regulations.

• The MoI made product labelling with SNI mark and number compulsory for various products.

• There is confusion on the labelling issue. It is unclear who is in charge for what and there appears to be no proper coordination.
V.3.3 Testing and Quality: Conformity Assessment

- Accreditation and Certification serve as tools to ensure competence and the application of standardized minimum requirements.
- Test laboratories, Inspection and Certification bodies are accredited to demonstrate their competence.
- Certification of a product (a term used to include a process or service) is a means of providing assurance that it complies with specified standards and other normative documents. In contrast to that, one of the characteristic functions of the personnel certification body is to conduct an examination, which uses objective criteria for competence scoring. Certification bodies for products have to meet all requirements stated in ISO Guide 65 and Certification Bodies for persons have to meet all requirements stated in ISO 17024 if they wish to demonstrate that they have the competence performing these certifications.
- Testing and calibration laboratories conduct tests and calibrations based on suitable and verified methods and have to meet all requirements stated in ISO 17025 if they wish to demonstrate that they operate a management system, are technically competent, and are able to generate technically valid results.
- Inspection bodies carry out assessments which may include the examination of materials, products, installations, plant, process, work procedures, or services, and the determination of their conformity with requirements, and the subsequent reporting of results of these activities to clients and, when required, to supervisory authorities. Inspection bodies have to meet all requirements stated in ISO 17020 if they wish to demonstrate that they have the competence performing these inspections.

V.3.3.1 Testing and Calibration Laboratories: Public Sector Institutions

There are several Ministries and Institutions which operate calibration and test laboratories across the whole of Indonesia. These are: Ministry of Trade (MoT), Ministry of Industry (MoI), Ministry of Marine Affairs and Fishery (MMAF), Ministry of Agriculture (MoA), Agency
for Food and Drugs (BPOM), the Indonesian Institute of Sciences (LIPI) and the National Agency for Assessment and Applied Technologies (BPPT). There are also the entities working on provincial and district levels, the DINAS. These bodies provide testing facilities serving as Conformity Assessment Bodies (CAB) for the regulated area and as product testing units for voluntary tests according to SNI and international or foreign standards. At present a substantial number of laboratories used for conformity assessment are not (yet) accredited or operate on a scope that is not covered by their accreditation. The list of their specific responsibilities and internal organisation is as follows:


**MoA -** 10 Balai Besar (CAB) & 33 DINAS (residue pesticides, veterinary medicine, feed, agricultural products, agricultural machinery & equipment, quality seeds/seedlings, fertilizer, pesticides, organic food system, Quality Management System (QMS) & CAB for food safety with 33 DINAS and 1 MoA lab.)

**MoI – Agency for Research and Development of Industry (ARDI or BPPI)**

- Center for Standardization
- Center for Resources and Environment
- Center for Industry Business Climate (Pusat Iklim Usaha Industri)
- Center for Technology with R&D centers providing testing and quality control facilities for products in different sectors. 11 Balai Besar + 11 Baristan
  - Center for Chemistry and Packaging BBKK, Jakarta
  - Center for Agro Based Industry BBIA, Bogor
  - Center for Textile BBT, Bandung
  - Center for Ceramics BBK, Bandung
  - Center for Pulp & Paper BBPK, Bandung
Indonesia’s Export Quality Infrastructure

- Center for Materials and Technical Products B4T, Bandung
- Center for Iron and Machines in Bandung BBLM, Bandung
- Center for Industry of Farm Products BBIHP, Makassar
- Center for Environmental Techniques BBPP, Semarang
- Center for Leather, Rubber and Plastics BBKKP, Yogyakarta
- Center for Handicrafts and Batik BBKB, Yogyakarta

- plus the 11 Balai Riset dan Standardisasi (BARISTAND) laboratories spread over Indonesia in BARISTAND Aceh, Medan, Padang, Palembang, Tanjung Karang, Surabaya, Banjarbaru, Pontianak, Samarinda, Manado, Ambon.

MMAF – Feed & Medicine, Health, Residue (3 MMAF, 2 provinces & 3 private), Disease (46 MMAF & about 39 provincial/DINAS), National Center for Quality Control (NCQC).

BPOM – BPOM operates 30 Balai POM laboratories (Processed Food & Drugs) across all parts of Indonesia. National Quality Control Laboratory for Drugs and Food (Pusat Pengujian Obat dan Makanan Nasional - PPOMN).

BPPT – B2TKS-Strength of materials, structures & components, BTL-Environmental Technology & Biotechnology, LAPTIAB-Pharmaceutical & Medical Technology, STP Polymer Technology & RoHS.

LIPI – Quality & Testing Technology, Biology, Chemistry, Physics, Metallurgy, Electronics & Telecommunication, Geo Technology, Puslit KIM-LIPI.

V.3.3.2 Testing: Private Sector Entities

Sucofindo (48 branches and 18 laboratories), TUVs, SGS and many more private service providers conduct testing of various products according to SNI, Indonesian regulations (SNI wajib), International & other national standards (ISO, EN, ASTM, JIS, DIN, AFNOR etc.). Some
serve as CAB (EU notified body) for products under International & other National Regulations (EU directives, Food law, US Food & Drugs Administration, UN/ECE on automotive parts and vehicles, CB on safety of electrical and electronic components, equipment and products and others) based on status as appointed.

V.3.3.3 Inspection: Public Sector Institutions

On an Indonesia-wide basis there are the following Ministries and Institutions: MoT, MoI, MMAF, MoA, BPOM, MoE, MoTr, MoMP, BPPT. Again, at province and district level there are the DINAS. These institutions conduct inspections for consumer protection, import & export, metal products, structures, food & fishery, farming, live stock, feed production & distribution, medicine distribution, pressure vessels, steam boilers, vehicles, loaded trucks, packaging dangerous goods for land-, sea-, air transport, waste water, air emission, waste & hazardous waste, incinerators.

The specific responsibilities are:

MoT: Consumer protection by market surveillance, PPMB (import & export).

MoI: B4T (metal product, active structures, welding).

MoA: farming, live stock.

MMAF: medicine distribution, feed production & distribution, wild catch & farming, collection, processing & EU border inspection for fishery products. MMAF has 40 inspectors for GMP, GAP, HACCP. Inspection is performed once/year and has 43 inspectors for hatcheries and about 50 inspectors for farming (monitoring residue plan).

There are about 250 inspectors on regional level under regional authority.

BPOM: Consumer protection by market surveillance for processed food & drugs. Licensing and certification of processed food, pharmaceutical and cosmetic industries based on Good Manufacturing Practices; Pre-market evaluation of products; Post-marketing surveillance including product sampling and laboratory testing, inspection of production and distribution facilities, investigation and law enforcement.
MoMP: Inspection of pressure vessels, steam boilers etc.


MoE: Inspection of waste water effluent, air emission (pollution), waste and hazardous waste generated at production sites, incinerators.

V.3.3.4 Inspection: Private Sector Institutions

Sucofindo, TUVs, SGS, Lloyds and more

- Pre-shipment inspection (various products) for export.
- TUV and others: conduct technical inspection of pressure vessels, elevator, conveyor & machines, vehicles for export to EU.

TUV: technical inspection of pressure vessels, elevator, conveyor & machines, vehicles for export to EU; Pre-shipment inspection (various products) for export.

SGS: Pre-shipment inspection (various products) for export.

SUCOFINDO: Pre-shipment inspection (various products) for export.

V.3.3.5 Certification – certification of conformity of products or systems with standards or technical regulations

Certificates are provided for products, persons and systems that fulfil minimum requirements described in standards. The certificates are delivered by a wide range of public and private sector institutions, which in general specialise in particular types of certification (by generic theme, by process, and by product).

V.3.3.6 Certification: Public Sector Institutions

The institutions involved and their responsibilities are as follows:

- Product certification incl. packaging & labelling – CAB & LsPro.
- System Certification – QMS, EMS, GMP, GMA, GHP, HACCP, Food Safety (health certificates), Eco-label, FSC, Timber Legality - CAB & LsPro.
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- Inspection – food (fresh, processed, fish), vehicles, pressure vessels, legal metrology, environment (effluents, emission, waste), forest - CAB & LsPro.

MoT: PPMB (CAB for, food, primary batteries, lamps, tires; LsPro for cpo, fertilizer cement, steel bars).

MoI: 11 BB & 11 Baristan (CAB for pressure vessels, heat exchanger, tanks, pipes, tires, ES lamps, dry cell battery, CB, food, bottled drinking water, waste water, food packaging & packaging dangerous goods, LsPro for lamps, cement, tires, concrete steel, textile, glass & ceramics, pulp & paper, EMS, QMS, HACCP, jewelry.

MMAF: Certification is conducted for Good Aquaculture Practice (GAP), Good Handling Practice (GHdP), Good Manufacturing Practices (GMP), and Hazardous Analysis and Critical Control Point (HACCP). Health certificates are issued by the provincial fishery laboratories that are under the authority of the Provincial Governments.

BPOM: Certification of processed food, pharmaceutical and cosmetic industries based on Good Manufacturing Practices, HACCP for processed food. Health certificates for export.

V.3.3.7 Certification: Private Sector Institutions

Sucofindo, TUVs, SGS, Bureau Veritas, Lloyds, Agung Lestari and many more provide product & system certification according to SNI and international or foreign standards.

Private certification bodies provide product & system certification for the regulated area (CAB) TUV Rheinland and some others are EU notified body for pressure vessels, elevator, conveyor, machines, automotive parts & vehicles UN/ECE, medical devices, EMC, electrical safety CB.

V.3.3.8 Observations on Testing, Inspection and Certification:

- MMAF is both a Regulator and an Operator, conducting inspections on medicine distribution, feed production & distribution, wild catch & farming and processing. It is generally advised that the functions of regulator and operator should be separate to avoid any potential conflict of interest.
• Health certificates are mandatory for export but not for domestic market. Health certificates are under the authority of MMAF, which delegates it to those regional labs
• GoI institutions “certify” their own inspectors, a practice that bears the risk that competence cannot be ensured. In element 4.2.1 of ISO 17024 it is stated: “The certification body shall be structured so that to give confidence in its competence, impartiality and integrity. In particular, the certification body shall be independent and impartial in relation to its applicants, candidates and certified persons, including their employers and their customers, and shall take all possible steps to assure ethical operations.”
• B2TKS-BBPT does product certification including factory inspections
• There is a consumer Association JLK (foundation) with little power, producers are not brought to court for non conforming products – law enforcement is weak!
• Ministry of Manpower is in charge to inspect all kinds of pressure vessels (incl. Gas cylinders) on the market. Competence appears questionable since many such installations can be found that are in very poor and unsafe condition despite the fact that they have the required inspection certificate.
• PPMB-MoT does not have the authority to do border inspections (at ports, airports), the authority is with customs.
• BPOM inspectors take samples from the market. If problems are found the products are taken from the shelves and producer is told to conduct corrective action. BPOM can withdraw a license (registration) for a product and publish that through the media. BPOM does not, however, automatically inform other institutions (e.g. MoI) of what it has done
• BPOM is not authorized to withdraw a company license and close down the factory. MoI has that authority - but if it is not informed by BPOM, then that authority is not likely to be used. Sanctions are defined (Mo Justice) but are usually not applied.

V.3.4 Accreditation
Accreditation comes from the Latin word credito—meaning to trust. Accreditation certifies the conformity assessment of products, systems or persons on the basis of a certain set of criteria. The
accreditation process serves to verify the preparedness and capabilities of the testing, calibration, inspection and certification organizations. Accreditation is an official recognition that the organization is prepared to carry out certain activities in accordance with certain definite conditions.

**National Accreditation Committee KAN: Status, Responsibilities and Activities**

- The authority of KAN as accreditation body for laboratories, certification (products, systems, personnel) and inspection is based on PP 102 - 2000 and Presidential Decree No 78 – 2001. KAN is internationally recognized by the Asia Pacific Laboratory Accreditation Cooperation (APLAC), International Laboratory Accreditation Cooperation (ILAC) and International Accreditation Forum (IAF).

- KAN defines and implements policy on accreditation, certification, inspection bodies and laboratories

**Badan Nasional Sertifikasi Profesi BNSP: Status and Responsibilities**

- The “accreditation body” for certification bodies issuing “professional certificates” for individuals (personnel certification) BNSP works based on PP 23 - 2004 and UU (law) No 13 – 2003. BNSP uses SKKNI (Standard Kompetensi Kerja Nasional Indonesia) as reference for certification.

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**MSTQ-Quality Accreditation & Certification**

Accreditation - “Recognition of Competence”
1. Laboratories (testing, calibration)
3. Inspection Bodies

- National Accreditation Committee KAN
- Badan Nasional Sertifikasi Profesi BNSP

Figure 9: MSTQ-Quality accreditation & certification
Observations related to KAN and BNSP:

- Despite its international recognition by APLAC, ILAC and IAF the competence of KAN is not on international standard level. Therefore test reports, certificates and inspection results issued by KAN accredited laboratories, certification- and inspection bodies are, in fact, very often not accepted by foreign users since there is reasonable doubt on the correctness of the results and verdicts. Users cannot be forced to accept conformity assessment (CA) documents and have the right to request CA to be conducted by an institution they trust.

- According to the agreements with APLAC, ILAC & IAF no other signing accreditation body will carry out accreditations in Indonesia. Laboratories operating in Indonesia can therefore not choose to be accredited by other accreditation bodies to achieve acceptance by the international business world.

- KAN needs to improve competence (HR, assessors including external assessors who in fact are about 95% of all KAN assessors in Indonesia).

- KAN does not have a proper electronic data base and information system (including of course a suitable software tool) to permit proper organization of its work process.

- KAN is part of BSN and therefore not independent. Regulator (BSN) and operator (KAN) should be separate to avoid any potential conflict of interest. One such conflict appears to be the financial dependence of KAN, which obtains its budget through BSN.

- KAN has a massive, growing task but very limited resources.

- Kan has currently 34 fixed staff and this number has remained static during the last years despite constant growth in the demand for accreditations.

- Income generated by accreditation services goes to the KAS NEGARA (national treasure), 90% is returned to BSN – KAN.

- Prices charged for KAN services are fixed by the MoFinance based on cost data supplied by KAN. The price appears to be set with only a very small margin on operating cost.

- Revenue from services is about 50% of the total budget used for KAN. Remaining 50% come from MoF via BSN.
• KAN needs more financial flexibility to allow hiring of competent assessors.
• According to PP 102-2000 every institution conducting conformity assessment according to SNI (mandatory and voluntary) has to be accredited by KAN. At present a substantial number of laboratories, certification bodies and inspection bodies used for conformity assessment are not (yet) accredited or operate on a scope that is not covered by their accreditation. For example the transport packaging inspection performed under the Ministry of Transportation is not accredited.
• KAN also provides accreditations to non SNI standards like ISO, JIS etc. if they have the capacity and competence to do so.
• According to an ASEAN agreement accreditation will be mandatory for ASEAN harmonized standards (voluntary & mandatory).
VI. ASSESSING THE EQI SYSTEM

SWOT Analysis of the EQI System

Table 1: SWOT Analysis of the EQI System

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
<th>OPPORTUNITIES</th>
<th>THREATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Many Physical Assets in</td>
<td>1: Not efficient</td>
<td>1: Use information</td>
<td>1: Growing workload</td>
</tr>
<tr>
<td>(Buildings, Equipment) exist</td>
<td>2: Not properly coordinated</td>
<td>2: Enhanced Competence will create confidence</td>
<td>2: Loss of Credibility at home &amp; abroad</td>
</tr>
<tr>
<td>2: Regulatory Systems in Place</td>
<td>3: Insufficient implementation</td>
<td>3: Make User friendly</td>
<td>3: Loss of Business Opportunities for domestic producers</td>
</tr>
<tr>
<td>3: Available Competence</td>
<td>4: Traceability not fully ensured in the value chain</td>
<td>4: Involve Private Sector</td>
<td></td>
</tr>
<tr>
<td>4: Business Growth</td>
<td>5: Maintenance of GOI facilities not ensured</td>
<td>5: Create Full Single system</td>
<td></td>
</tr>
</tbody>
</table>

VI.1 Factors behind the problems

Factor One: Institutional Ego

• Institutions live separate lives; actions are focused on the institution’s own situation, with limited attention to whether this focus generates dysfunction in the system.

• Competition and not cooperation tends to shape institutional behaviour – effort goes into gaining more “territory” (officially sanctioned responsibilities, more resources) for the institution, even at the expense of other EQI institutions.

• The prevailing perception seems to be “zero sum game” – the possibility of creating a positive sum game, where everyone could gain, is not considered.

Factor Two: Insufficiency of System Governance And Strategic Planning

• No higher level authority appears to exist with powers to ensure that institutions work
within clearly defined spheres, and cooperate rather than compete.

• It seems difficult to identify a strategic approach which could integrate the development of EQI with other objectives of Indonesia. This complicates the task of strategic planning in EQI itself.

• Strategic Visions in key related fields, such as Trade Policy, are themselves not fully articulated.

**Factor Three: Constraints On Allocation Of Human Resources**

• Civil Service rules and procedures appear to limit the possibilities for significant interchange of personnel across institutions and therefore limit the development of system wide knowledge.

• Within institutions, relatively early obligatory retirement regulations may limit the full use of the skills of experienced and qualified staff.

These factors probably exist to some extent in most countries. But the ASEAN experience reviewed earlier suggests that Indonesia has significant problems compared with its major partners and competitors. A clear strategic vision is essential, but is hard to discern. There are gaps in key areas of policy. Institutions do not see themselves as part of a connected system.

The character of government administrative rules does not support the optimum development of official institutions. All of these are “soft” issues, in that they do not refer to inadequacies of buildings, equipment and other material resources. Yet experience of so many countries, including in ASEAN, demonstrates that changing the perceptions of institutions and individuals is frequently far more difficult than solving the “hard” issues. Indonesia’s neighbours have all, in their own ways and within their own cultures, engaged in such “soft” changes for many years and are now reaping the rewards. Indonesia itself has to follow a similar process.
Based on the gap analysis, EQI models applied in competing exporting countries, and the ASEAN regional strategies in terms of EQI integration, the vision for an improved Indonesia’s EQI system is designed, which takes into account the country’s institutional realities, export priorities, capacity constraints and competitiveness level.

VII.1 The Compliance Challenges – International and EU Regulations

International and EU regulations are developed with the aim to ensure safety for consumers and lately more and more with the intention to reduce negative impacts on the environment.

Figure 10: Challenges-international & EU regulations
VII.2 The Vision for Indonesia’s EQI

“Competent EQI System Actor provide User Friendly service to help Producers meet Compliance Requirements in Export Markets”

Figure 11: Vision for Indonesia’s EQI

VII.3 What The Compliance System Must Have

“In order to optimize the productivity of the R&D Institutions at the Ministries a Coordinating Institution is required which identifies the technological needs and seeks technical solutions in a unified way of thinking.”
VII.4 Traceability: The Fundamental Feature of an Efficient EQI System

The indispensable requirement which the EQI system must satisfy is traceability throughout the system.

VII.5 The Four Key Dimensions of the Vision

To reach full traceability, competence, information and private sector involvement are essential. Hence these four things are the objectives of the vision. They are shown in the following diagrams.
VII.5.1 Traceability

Table 2: Traceability: The basic key for EQI

Objectives to ensure traceability of all activities in the value chain (National & International)

Area 1: Provision of national reference standards traceable to international standards
- Ensure reliable physical & chemical metrology traceable to international standards

Area 2: Provision of network to ensure traceability of (E) QI actors to national standards
- Ensure traceability of national physical & chemical standard to industrial metrology

Area 3: Provision of proficiency tests to ensure traceability of calibration & test results
- Ensure traceability of calibration & test results to national reference laboratories with proficiency tests
- Ensure Traceability of national reference laboratories to international reference laboratories with proficiency test

Area 4: Traceability in the value chain
- Ensure Traceability among suppliers, collectors and processors

VII.5.2 Information

Coordination and a higher grade of efficiency can be achieved by collecting and analyzing information that then can be provided as product to all actors, public and private in the value chain.

Table 3: Information: The missing link in EQI

Objectives to maximise the use of information in achieving system improvement of EQI

Area 1: Information for Internal Institutional Improvement
- Online system for tracking service provision and management of the workload
- Data bases to permit planning of future needs

Area 2: Information to Strengthen System Coordination
- Sharing of data bases among institutions doing similar work to avoid duplication, increase efficiency
- Share information to detect gaps in service provision, ensure that user need are met

Area 3: Information for Outreach
- Use information to provide clients with a clear picture of what the institutions in the EQI system offer
- Development of information system (HELP DESK) which give firms the opportunity to develop quality based trade to the maximum
VII.5.3 Competence

Competence of all actors in the value chain is required to ensure a properly functioning EQI system that provides confidence for all users, national and international. Test laboratories, Inspection and Certification bodies are accredited to demonstrate their competence. It is therefore essential that the competence of the highest level in the system, the accreditation, is sufficient to assess and ensure the competence of laboratories, inspection and certification which will then provide reliable results and verdicts on products and systems in the value chain. This applies to Good Practice and Hygiene Systems for farming, fishing, handling and manufacturing as well as for production of components, products and packaging. It is essential that the verdicts given by laboratories, inspectors and certifiers are acted upon. If that does not happen, the system is again rendered suspect. The situation of Indonesia today is weak with regard to implementation.

Table 4: Competence the key for confidence

VII.5.4 Private Sector Involvement

Involvement of the private sector, users as well as service providers, will enhance knowledge, create a sense of ownership and reduce the burden carried by the public sector. Standardisation is the process of establishing technical standards that is carried out based on consensual
agreement of the interest groups affected by the given issue. It is therefore essential to involve the private sector to achieve the main goal to eliminate technical obstacles to trade, enhance technical cooperation, increase suitability of products, systems and services and reduce cost for producers, suppliers and consumers.

Table 5: Involvement: The missing link to the users

<table>
<thead>
<tr>
<th>Area One: Create awareness on the value of (E)QI facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Ensure users (industry) understand the value of standards and technical regulations for their business</td>
</tr>
<tr>
<td>● Ensure users (industry) understand the value of traceability for their business</td>
</tr>
<tr>
<td>● Create a sense of ownership</td>
</tr>
<tr>
<td>● Ensure awareness of consumer groups</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Area Two: Provision of network to ensure information is distributed</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Establish reliable means of information to ensure availability for all stakeholders in a timely manner</td>
</tr>
<tr>
<td>● Ensure information is understandable and establish hotlines for questions</td>
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<table>
<thead>
<tr>
<th>Area Three: Provision of procedures to ensure involvement of stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Create reliable channel for feedback from corporate &amp; public sector</td>
</tr>
<tr>
<td>● Create and implement procedures to ensure feedback is analysed and taken into account</td>
</tr>
<tr>
<td>● Ensure sense of ownership through involvement and success</td>
</tr>
</tbody>
</table>

VII.5.5 Linking the Dimensions of the Vision

Table 6: Objectives are linked

<table>
<thead>
<tr>
<th>INFORMATION provides</th>
<th>TRACEABILITY provides</th>
<th>COMPETENCE provides</th>
<th>PRIVATE SECTOR INVOLVEMENT provides</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFORMATION requires</td>
<td>● Confidence on conformity assessment for products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRACABILITY requires</td>
<td>● KAN provider info on competent service providers</td>
<td></td>
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<tr>
<td>COMPETENCE requires</td>
<td>● Assessors</td>
<td></td>
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<tr>
<td>PRIVATE SECTOR INVOLVEMENT requires</td>
<td>● Calibration</td>
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<table>
<thead>
<tr>
<th>INFORMATION provides</th>
</tr>
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<tbody>
<tr>
<td>● Methods</td>
</tr>
<tr>
<td>● Standards</td>
</tr>
<tr>
<td>● Regulations</td>
</tr>
<tr>
<td>● Equipment</td>
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<tr>
<td>● Value Chain</td>
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<td>● Products</td>
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<table>
<thead>
<tr>
<th>TRACEABILITY provides</th>
</tr>
</thead>
<tbody>
<tr>
<td>● International</td>
</tr>
<tr>
<td>● Calibration</td>
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<tr>
<td>● Test, Inspect</td>
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<tr>
<td>● Certify</td>
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<tr>
<td>● Calibration</td>
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<tr>
<td>● Testing</td>
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<tr>
<td>● Supply Chain Management</td>
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<table>
<thead>
<tr>
<th>COMPETENCE provides</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Metrology (calibration, CRM)</td>
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<tr>
<td>● Proficiency Tests</td>
</tr>
<tr>
<td>● Metrology</td>
</tr>
<tr>
<td>● Calibration</td>
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<td>● Standards</td>
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<table>
<thead>
<tr>
<th>PRIVATE SECTOR INVOLVEMENT provides</th>
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<tbody>
<tr>
<td>● Regulations</td>
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<td>● Testing</td>
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<tr>
<td>● Standards</td>
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<tr>
<td>● Inspection</td>
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<tr>
<td>● Supply Chain</td>
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<tr>
<td>● Calibration</td>
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<tr>
<td>● Service</td>
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<tr>
<td>● Value Chain</td>
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<tr>
<td>● Consultancy</td>
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<table>
<thead>
<tr>
<th>Information</th>
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<td>● Equipment</td>
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<td>● Products</td>
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<tr>
<td>● Testing</td>
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<tr>
<td>● Inspection</td>
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<tr>
<td>● Calibration</td>
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<tr>
<td>● Conf. Assessment</td>
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</table>
A strategic roadmap for Indonesia’s EQI system improvement must show what needs to be done to implement the vision.

**WHAT THE ROADMAP COVERS**

**CHOOSING THE DIRECTIONS FOR CHANGE**
- Issues and Routes for Change
- National Priorities and the Vision for Indonesia’s EQI

**THE CORE AREAS FOR ACTION**
- Strategic Management
- The Information Inventory
- Traceability
- Competence
- Private Sector Involvement

**INSTITUTIONS AND INDICATORS**
- The Agencies Involved
- Monitoring and Indicators (OVIs)

*Figure 14: What the roadmap covers*
VIII.1. Implementing Change

Successful management of change must keep a clear sight of what is to be achieved, and the key obstacles which must be overcome. The diagram summarises the point.

**ACHIEVING EQI EFFICIENCY DURING POLITICAL TRANSITION**

- *The Fundamental Message*- most of the elements exist
  - *but the institutions do not work together*
  - *The Changes required to close gaps and remove contradictions must come from the Institutions*
    - *Sharing capabilities, equipment and knowledge*
  - *This will be hard*
    - *because of the ever changing balance of responsibilities among provinces and the central government*

*Figure 15*: Achieving EQI efficiency during political transition

VIII.1.1 Routes to Efficiency Increase

- **The Top Down Route.**
  
  Provides a single authority for change, states a direction. Requires intensive implementation effort and strong communication with stakeholders.

- **The External Facilitation Route.**

  Outside Groups help institutional insiders to create change at the level of the operating institutions.

- **The Internal Route.**

  Organisations do it entirely on their own, with technical staff leading the way.

The routes are not mutually exclusive. In practice, it is almost certain that all will have to be pursued simultaneously. The speed at which results can be achieved may be in inverse proportion to the effect of the results. For example, it may well take a considerable time before
political results (the top down route) can yield anything tangible – but when that happens, the impacts can reverberate through the system.

**VIII.1.2 The Actors for Change**

The identified routes point to the key groups of actors who can bring about change. Within Indonesia, there are three principal sets of actors:

1. **Political Decision Makers:** they can alter the legal, institutional and financial parameters within which the EQI system operates inside Indonesia, and can help to shape the trading environment in which firms operate (the export space).

2. **EQI Institutions:** it is they who, by embracing a system efficiency drive, can alter the situation on the ground.

3. **Private Sector:** user firms of the EQI system, while perhaps not having direct power, can articulate their needs and push the system towards providing what is required to assist trade. Private firms which are EQI service suppliers can themselves play an important role in meeting those requirements.

Maximum change impact will be achieved when the three sets of actors work together and in the same direction. This entails building their confidence in each other, and recognising that each has an essential role to play.

The EU can also be a positive actor for change. This means that overall EU trade policy towards Indonesia, which is conducted through Brussels, should be set in a positive, export enhancing direction for Indonesia. It also means that specific EQI assistance can be provided to help the various Indonesian actors perform their change enhancing roles. The latter kind of support will come through TSP II and other programmes which affect trade.

There is, to some degree, a fit between each set of actors and the changes in strategic management and technical competence which are required. Political Decision Makers work at the level of strategic management, in the sense that their efforts shape the parameters within which other
actors must operate. But political decisions cannot be taken in a vacuum; they require inputs from the other groups. EQI institutions function mostly with respect to operational matters, so technical competence issues are the areas where they should focus. But they must also take care to conduct good strategic management of their own institutions, and of the system as a whole. That is why cooperation among them is crucial. At present the Private Sector has not been accorded enough space to make its views felt and ensure that its needs are heard. As that space increases, so it also can add to technical competence and strategic management.

The EU must work as a support entity, being ready to offer assistance where it can and according to availability.

**VIII.2. Tools for Change: An EQI Inventory and Information Management System**

The most suitable practical tool to create both cooperative processes and efficiency improvement is the conduct of an in depth EQI System Inventory. To do this means starting out by defining what is needed, and finding out what Indonesia actually has.

The two sides of the balance sheet are shown in the diagram.

*Table 7: Inventory-collect information*
The table includes references to:

1. The international regulatory standards for processes, products and management systems, which Indonesian exports have to meet.
2. An inventory of the Indonesian businesses engaged in export.
3. An inventory of the technical EQI institutions. Hence the information system described here covers not only the technical resources of Indonesia, but also the international regulatory system as it affects exports as well as a picture of the Indonesian export sector.

It follows that some of the required inputs to the information system come from within EQI while others will have to be obtained from other sources, both Indonesian and foreign.

The institutional participants in the system are shown in the chart below. It covers some international groups as well as the Indonesian institutions.

**Figure 16**: Inventory information system

**VIII.2.2 How Indonesian Institutions Can Create The Information System**

The major steps to be taken are:

- Identify an Information Management Body-IMB.
• Ministries & Agencies provide information on all their Conformity Assessment (CA) facilities to IMB.
• Ministries & Agencies collect information from DINAS in related fields and provide information to IMB.
• KAN provides data on accredited CA facilities (GoI & private) to IMB
• IMB builds and operates database and provides information to all participants and potential users.
• Ministries, agencies, BSN/KAN build Data bases and Help Desks for users
• IMB to encourage business associations and private QI service providers to participate in the Information System.

VIII.2.3. Products Of The Information System

![Figure 17: Products of the information system](image)

The information system can provide a number of products for CA service providers, public and private, and for producers, suppliers and exporters.
PRODUCTS THAT HELP EFFICIENCY OF THE EQI SYSTEM

Detailed analysis of the information will most likely show that utilization of available capacities is not optimal. The information can be used to plan activities and further investments in a more efficient manner. The Inventory will provide information about highly specialized laboratories that would likely be able to serve as reference laboratory for selected tests on particular products. The information could be used to create a network of national reference laboratories for the entire industry. Efforts could then be made to close existing gaps and to upgrade and ensure competence. Selected national reference laboratories could then ensure traceability to international reference laboratories for their particular area though regular participation in PT and conduct PT for all national laboratories (public, service providers, users) to ensure traceability on national level. Data will show which laboratories conduct which calibrations, tests and analysis. Based on this information it will be easy to select all potential participants for particular PT schemes. All laboratories can then be monitored regarding regular participation and results in PTs.

PRODUCTS THAT FACILITATE SYSTEM COOPERATION

CA facilities should be able to select potential cooperation partners for subcontracting. Private service providers are much more profit oriented than public institutions. However, they are also eager to cover a wide range of services and satisfy their customer expectations. Private service providers are therefore interested to use available facilities through subcontracting rather than taking the risk of large investment in testing facilities.

PRODUCTS THAT HELP PRODUCERS/EXPORTERS

Users need information on applicable technical requirements for export destinations and available facilities for CA according to these requirements. The data bank(s) could be used to make available reliable information for all stakeholders in a timely manner. Help Desks and hotlines for questions of users could be established. The data analysis should also provide information of resources and production capabilities in relation to expected export market
demand. Promising product sectors can then be selected and related development plans established. These development plans should include all aspects of the value chain including required process- and product certification requirements.

VIII.3. Traceability In Metrology

VIII.3.1 Strategic Management

The Key Decisions are:

- Create the NMI for instance by strengthening the status of KIM-LIPI.
- Establish Reference Institution(s) for chemical metrology (MIC) and Network of CRM providers.
- Develop and enact a revised National Metrology Law. Revision is required to represent the updated status and functions of NMI and MIC, and therefore modernize the Indonesian institutional structure in scientific metrology.
- Redefine the tasks of Legal Metrology.
- Set realistic objectives of Legal Metrology for the next decade.
- Modify and Implement Legal Metrology Plan.
- Establish coordination & cooperation between scientific/technical & legal metrology.

VIII.3.2. How Indonesian QI Institutions Can Improve Traceability In Metrology

The Principles Steps are:

- Establish comprehensive system(s) and schedules for PT on calibration and chemical metrology.
- Improve organization and evaluation of PT.
- Establish training modules on interpretation and utilization of calibration certificates.
- Establish training modules on quality assurance in laboratories.
VIII.4. How Indonesian QI Institutions Improve Traceability In CA & Value Chain

The Issues to be covered are:

- Reference Laboratories: Set them up for selected (product) sectors.
- PT: Establish comprehensive schedules for all laboratories (incl. private) for selected sectors.
- PT: Organization and evaluation.
- PT: Establish training modules on interpretation and utilization of PT evaluation results as basis for corrective actions.
- CRM: Improve provision and distribution.
- CA test methods: Establish reference list, methods and criteria for inspection and certification for selected sectors.
- Source Identification: Establish training modules; select suitable service providers (GoI & private) for training; and conduct Training of Trainers (ToT).
- Pilot Projects: Select supplier groups and conduct the projects.

VIII.5. How Indonesian QI Institutions Improve and Ensure Competence

There is one Strategic Decision to be taken - separate KAN from BSN. This separation is to ensure there are no potential conflicts of interest and provide financial independence and flexibility for KAN. It might even be considered to allow more involvement of the private sector in KAN. It cannot be overemphasized that KAN is a critical institution in the system, especially for international recognition. Its institutional position must therefore be strengthened.

A series of improvements are also required:

- Improve accreditation system through increased capacity (IT & staff) of KAN and increased number, scope & competence of KAN assessors.
- Establish training modules on quality assurance in laboratories (determination of detection limits, measuring uncertainty, verification & interpretation of test results, statistical methods).
- Increase scope and competence of laboratories, inspection and certification bodies building on co-operation and subcontracting.
• Ensure the awareness of responsibilities of CA providers (management and staff) of the likely consequences and impacts of their results and verdict on clients and the general public.

• Provide training modules to improve knowledge of Indonesian suppliers (SME) on GAcP, GAqP, GMP, GHdP, HACCP for selected sectors; then conduct ToT courses for suitable service providers (GoI, associations, private).

VIII.6 How QI Institutions Increase Private Sector Involvement

Mapping The Private Sector

• Establish data base and procedures to include technical expertise of Private Sector.

Strengthening Service Provision:

• Share information and create climate for cooperation between Public and Private QI Service Providers.

• Initiate twinning and increase delegation of CA activities to Private Sector.

Developing Technical Regulations and Standards

• Encourage Private Sector participation in the formulation of TR and standards.

• Provide capacity for interpretation and application of TR and standards.

Creating Real Time Information

• Consult in depth with the Private Sector (service providers and users with special attention to SMES) on their needs with regard to information concerning standards-TR and related barriers to trade; on the basis of perceived needs, create appropriate user friendly help desks, hotlines.
IX. MONITORING CHANGE

If change is occurring, it must be measured. To do that, three things are needed.

- First, a picture of the starting position (the so called “baseline” situation) is needed.
- Second, the construction of indicators – quantitative or qualitative – which can measure alterations to the original picture.
- Third, using the indicators as a basis for corrective actions (where required).

The diagram below summarises the process.

Indicators are usually defined to allow the evaluation of changes. One suitable indicator would be the existence of a trade policy which can, at present, not be found. The establishment of an Information Management Body and the amount of data collected would also indicate development as expected. An indicator for efficiency of laboratories would be the average utilization (%) of
laboratories before and after activities on efficiency improvement have been implemented. The existence of comprehensive schedules for Proficiency Testing and the grade of implementation of these schedules would also provide information on the status of improvement.
The paper has shown that Indonesia has most of the technical resources in place with which to achieve full compliance with the fast changing frontiers set by TBT and SPS in international markets. The key steps to improvement are for the existing institutions to work together as a system, something which occurs currently only to a very limited extent, and thereby to pursue the goal of system efficiency. Given the heavy workload pressures of several parts of the system, and on particular “nerve points” of the system, such as accreditation, there will be need over time for additional resources to be targeted towards these areas. But the critical initial step is mobilise and utilise effectively the resources already in existence.

Those resources are not confined to public sector institutions. A number of QI service providers, mostly though not entirely affiliates of well known international firms, operate in Indonesia and possess important laboratories and skills. These entities therefore form part of the “capital stock in QI” which exists in the country. They must be involved to a much greater extent so that the best use can be made of everything which exists. These private sector QI service providers operate on a profit basis – they sell their services to private producers and exporters. Hence they possess knowledge which is not only of a technical kind; they also have an acute sense of what the demand, actual and latent, for QI services really is.

Within the public sector institutions, this “feel for the demand pulse” is little present. Three of the Balai Besar under the Ministry of Industry have been effectively corporatised, under the BLU process, and must therefore obtain a large majority (around 80%) of their revenue through selling their services. These entities do have knowledge of the demand requirements in their product areas. But they are still only a small minority of the total set of public sector institutions. Indonesia is only at the beginning
of the grand partnership of public and private QI providers which was initiated in countries such as Malaysia, Singapore and Thailand some 15 years ago. Private sector involvement in the QI process therefore represents a major challenge for the future.

The paper proposes a thorough system inventory of QI as a key tool for accelerating the process of change. Given that modern TR and standards setting activities focus on process rather than product, the achievement of full traceability is the principle on which a sound system must be built. Competence at every stage of the value chain is a necessary, though not sufficient, condition for traceability to be there. Hence the paper recommends a series of detailed steps, at all levels of the process, through which competence can be achieved.

The Information Inventory should be conducted through the participation and cooperation of all institutions, public and private, which are part of QI. The purpose is for them to share information on resources, requirements and cooperation possibilities which can lead to optimum use of the system capabilities. The system should be managed by a competent, neutral body which has the functions of: collating and analysing the information; transforming the material into information products which can assist all participants and users of the QI system (meaning especially the private producers); distributing the information products through the appropriate channels, within Indonesia and abroad; and pointing to the remaining gaps and requirements for additional resources.

A smoothly functioning Information System for QI will certainly take some time to create, and will be a gradual, and mutual, confidence building process among all participants and users. It would be naïve to suppose that institutions which have maintained a considerable distance from each other over many years, and which tend to compete rather than collaborate (a conclusion which holds within institutions as well as across them) would quickly learn to work with each other. But if the process is begun with caution, then it will gather momentum.

The paper therefore deals primarily with a “bottom up” approach to improvement and
compliance. The technical institutions themselves are perceived as the agents of change, and in charge of its management. The paper also recognises, however, that Indonesia is in the midst of a complex and extended period of political change, the end points of which are themselves not known with any certainty. In this process, there are some changes which it would be desirable to make “from the top”, and which in fact can only be made at that level. These include: policy changes (especially with regard to trade and a national quality policy); institutional changes (such as the creation of an NMI, a clearer separation of KAN from BSN); and legal changes (a new National Metrology Law, for example).

Yet these “top down” improvements do not cover all that is required from the top level. One of the pervasive remnants of the earlier structure for QI is the overlapping responsibilities, the confusion about who is truly in charge of what, which creates permanent uncertainty in the minds of users, as well as creating wasteful use of resources. Decisions to clarify this must be made. The QI system institutions can themselves propose these changes, and will be in a better position to do so as the Information Inventory proceeds. But the decisions themselves must ultimately be taken by higher authorities.

Any complex process of efficiency improvement, as set out in this paper, will lead both to resource reallocation needs, and to the identification of the activities which require additional investment. The current situation in Indonesia, especially relating to civil service rules regarding switching of staff across Ministries and institutions, and the movement of staff within institutions, impose far too much rigidity in the system. They are a barrier to efficiency, and consideration should be given to making them much more flexible. At the same time, the fact that QI institutions are public, and derive their revenue for the most part from the Ministry of Finance, means that adequate allocations of funds depend on the persuasiveness of the case which is made for such allocations. Within Indonesia there does not seem to be any ministry or institution which can currently “champion the case” for proper resource allocation. Until QI is given sufficient importance at that level, there is always likely to be a distinctly sub optimal situation.
Foreign development partners can provide a range of resources which can help Indonesia to carry through the transformation process and achieve the world class compliance for which the country strives. A great deal has been accomplished over the years, and Indonesia is now on the threshold of making the breakthrough. It has the resources, it has the skills – what is now needed is the determination to work together to achieve the goal.
Terms and Institutions relevant for the Quality Infrastructure

**APLAC - Asia Pacific Laboratory Accreditation Cooperation** [http://www.aplac.org](http://www.aplac.org)
APLAC is a cooperation of accreditation bodies in the Asia Pacific region that accredit laboratories, inspection bodies and reference material producers.

**APMP - Asia Pacific Metrology Programme** [http://www.apmpweb.org](http://www.apmpweb.org)
APMP is a grouping of national metrology institutes (NMIs) from the Asia-Pacific region engaged in improving regional metrological capability through the sharing of expertise and exchange of technical services among Member laboratories. APMP is also a Regional Metrology Organization (RMO) recognized by the International Committee for Weights and Measures (CIPM) for the purpose of worldwide mutual recognition of measurement standards and of calibration and measurement certificates.

**BIPM - Bureau international des poids et mesures** [http://www.bipm.org](http://www.bipm.org)
The International Bureau of Weights and Measures is the English name of the BIPM, a standards organisation, one of the three organizations established to maintain the International System of Units (SI) under the terms of the Convention du Mètre (Metre Convention).

**CEN - European Committee for Standardization** [http://www.cenorm.be](http://www.cenorm.be)
Founded in 1961 by the national standards bodies in the European Economic Community and EFTA countries, CEN is contributing to the objectives of the European Union and European Economic Area with voluntary technical standards which promote free trade, the safety of
workers and consumers, interoperability of networks, environmental protection, exploitation of research and development programmes, and public procurement.

COMPETENT AUTHORITY:
A body appointed by the EU with authority to act on behalf of an EU member state(s) to ensure that the requirements of selected EU directives are met

EUROMET - European Metrology http://www.euromet.org
IEC - International Electrotechnical Commission http://www.iec.ch
ILAC - International Laboratory Accreditation Cooperation http://www.ilac.org
ILAC is an international cooperation of laboratory and inspection accreditation bodies.

IMEKO - International Measurement Confederation http://www.imeko.org
ISO - International Organisation for Standardization http://www.iso.ch
ISO is the world’s largest developer and publisher of International Standards. ISO is a network of the national standards institutes of 163 countries, one member per country, with a Central Secretariat in Geneva, Switzerland, that coordinates the system.

ITU - International Telecommunication Union http://www.itu.int
NSW National Single Window
A National Single Window NSW is an electronic system that facilitates trade, increase efficiency of the Government delivery system and provide benefits to all members of the trading community, including Government

NOTIFIED BODY ec.europa.eu/enterprise/newapproach/nando/
Notified Body is a Conformity Assessment Body (CAB) for the regulated area. Notification is an act whereby a Member State informs the Commission and the other Member States that a body, which fulfils the relevant requirements, has been designated to carry out conformity assessment according to a directive. Notification of Notified Bodies and their withdrawal are the responsibility of the notifying Member State. The notified body must have its head office in one of the European member states.
OIML - International Organization of Legal Metrology http://www.oiml.org

The International Organization of Legal Metrology (OIML) is an intergovernmental treaty organization whose membership includes member states, countries which participate actively in technical activities, and Corresponding Members, countries which join the OIML as observers.

TECHNICAL REGULATIONS

Technical regulations are issued by regulatory bodies (Government Institutions with legislative authority) with the aim to guarantee the safety of consumers using goods and services. Technical regulations are binding (mandatory) in their entirety.

WELMEC - European Cooperation for Legal Metrology http://www.welmec.org

WTO Enquiry Point www.wto.org/english/tratop_e/tbt_enquiry_points_e.htm

Article 10.1 of the WTO Agreement of Technical Barriers to Trade requires that “each Member shall ensure that an enquiry point exists which is able to answer all reasonable enquires from other Members and interested parties in other Members as well as to provide the relevant documents regarding:

(1) any technical regulations,
(2) any standards,
(3) any conformity assessment procedures,
(4) the membership and participation of the Member … in international and regional standardizing bodies and conformity assessment systems, as well as in bilateral and multilateral arrangements within the scope of this Agreement,
(5) the location of notices published pursuant to this Agreement, and
(6) the location of other enquiry points”.