

Independent Validation of Legal Timber: First steps towards a legal and sustainable timber trade

EXECUTIVE SUMMARY

This paper sets out a phased solution to the problem of illegal logging and unauthorised conversion leading to the continuing destruction of tropical forest.

The proposal is based on the concept of independent monitoring and verification of land use changes, timber flows and resource management at both the national and producer level. A pragmatic approach is proposed through the compulsory *Independent Validation of Legal Timber (IVLT)* which would lead to and could possibly be linked with voluntary *Sustainable Forest Management (SFM) certification*. There are three steps to the process that could form the three levels of a 'Sustainable Timber Trade' labelling system:

1. A **Certificate of Legal Origin (CLO)** is provided for logs and lumber that can demonstrate: (i) legal origin (i.e. they come from a legally owned concession, licence area etc.); (ii) legal ownership from the forest to the point of export or sale; (iii) compliance with royalty and area based taxes and fees; and, (iv) compliance with authorised volumes, quota and product regulations. The products can be labelled as 'Timber from a Legal Origin'.
2. A **Certificate of Legal Compliance (CLC)** is awarded where forest management has been verified as compliant with specific national legislation and regulations, including the conditions of the concession agreement of licence. This should include the preparation and implementation of approved inventories and management plans. If a producer has both the CLO and CLC, the products can be labelled as 'Validated Legal Timber'.
3. The **Certificate of Sustainable Forest Management (CSFM)** is the certificate awarded under an SFM certification scheme such as the Forest Stewardship Council (FSC). In the proposed labelling system, qualifying timber could then be labelled as 'Sustainably Produced Timber.'

The *Independent Validation of Legal Timber (IVLT)* covers steps 1 and 2. A summary is provided as Table 1.

Prior to the implementation of the IVLT scheme, it will be necessary to review and if necessary modify the policy, legislation, and institutional framework. It is essential that there are open and transparent methods of resource allocation and that there are separate institutional functions for monitoring and detection, and, the granting of timber rights and law enforcement. It is also essential that the scheme is financially self-sustaining in the long term. It could be financed through a fee or levy paid separately from the royalty and not paid into the central treasury.

Independent verification companies, with an international reputation to maintain, have the capacity to run or co-ordinate a comprehensive monitoring and verification programme based on remote sensing, timber tracking, document review, field checks and data processing, as an out-sourced service or as part of an institution building process.

Concurrently with the implementation of the IVLT scheme there should be a certification support programme (CSP) (initiated to help and guide producers from the first two levels to certification) and the development of national standards and national level monitoring of the forest sector. Once a producer has raised standards to meet the IVLT requirements, with the support of the CSP and the increased possibility for group certification the final step to SFM certification will be considerably easier than at present.

An over-riding pre-condition is that the IVLT scheme must be compulsory for all producers at the national or provincial level. Once started the process could be significantly enhanced by importing countries insisting on only importing independently **Validated Legal Timber** through bilateral trade agreements.

In many instances the improvement of the currently poor capture of existing rent, royalties, fees, taxes and duties would be more than sufficient to pay for the implementation. Compliant companies could get a tax rebate to offset the inspection fee.

The benefits of successful implementation would include: reduced illegal logging, reduced illegal conversion to other land uses, increased capture of fees, improved forest sector control, improved environmental performance, promotion of legally sourced timber, and the eventual ultimate goal of sustainable forest management.

All stakeholders have a role in getting the scheme started and then implemented. Local governments need to commit to the process and, if necessary, undertake legal and institutional change. The private sector should recognise the growing demand for sustainably produced timber, the need for the similar trade wide operating conditions, and that legality is increasingly a requirement for timber products. The international community could provide assistance in the formulation of policy, legislation and institutional change and assist with funding start up costs.

The continued destruction of tropical forest and widespread illegal logging need urgent action. The approach outlined here presents a credible solution. What is needed now is: increased debate amongst stakeholders; comment and revision of proposals; and then, instigation of pilot schemes in selected countries across the tropics. The technology and skills already exist. The investments are not large but potential benefits huge.

1. INTRODUCTION

The aim of the proposed approach is to significantly reduce illegal logging in countries where there is weak forest sector control - with particular emphasis on tropical areas. Solving the problem of illegal logging has been given a high priority by the G8 through its Action Programme on Forests. There are clear indications that 'legality' is going to be a requirement in some importing countries and may or should become obligatory.

"Independent monitoring and audit [...] can provide valuable support to producer governments in trying to enforce forest law. It can also offer independent validation of 'legal timber', which assists consumers who want to avoid buying timber from illegal sources.

Technologies can now be used to verify whether [agreed standards] have been met. Log tracking technologies are developing all the time [...]. Experience from [all continents] shows that a credible independent third party mandated to carry out inspection or monitoring can very quickly have an impact at low cost." ¹

This quotation remarkably describes the principles behind the concepts and methods that are developed in this paper (the second of two papers). The first paper² analysed the main reasons why the approaches of i) *traditional Government command and control* and ii) *voluntary certification* have in many cases both failed to significantly reduce illegal logging or the unplanned conversion of forest to other land uses in the tropics. It promoted independent monitoring and verification of landuse changes, timber flows and resource management at the national level as a practical and effective solution towards achieving legal compliance in the forest sector. It also explained why and how a nationally co-ordinated effort could facilitate further progress towards individual and voluntary certification of forest management. It concluded by suggesting that whilst many countries with tropical forests are committed to sustainable forest management yet they frequently don't have the resources, skills or political will to implement the required changes. Support is therefore required from the international community and donors to facilitate and encourage the use of new systems and technologies to address the continuing problems of illegal logging and loss of tropical forests and forest land.

This second paper elaborates the idea that effective and credible independent verification of forest industry and trade compliance with existing legislation and regulations could be a crucial first step on the road to truly sustainable forest management. The approach outlined here is generic and would need to be adapted to meet the specific requirements for implementation in any given situation.

¹ Extracts from a speech made by Hilary Benn, MP Parliamentary Under Secretary of State for International Development, UK Forest Law Enforcement and Governance Conference Indonesia 13 September 2001

² National monitoring and Certification are both needed to save the tropical forests, SGS, de La Rochefordière, A., Mitchell, A.M., 2001

2. THE ROUTE TO A SUSTAINABLE TIMBER: THE THREE STEPS

In an ideal world, all producers would be voluntarily certified to a stringent sustainable forest management (SFM) certification scheme, thereby ensuring (and also proving) that their forests are being sustainably managed. Consumers could then be confident that their purchases come from sustainable supplies. However the difficulties, including costs and skills required to attain this goal in the tropics are often high. There has frequently been resistance from both governments and producers. Only forest areas signed up for certification benefit from improved management and certification cannot address the issues of illegal logging and/or landuse changes outside, or even often *inside*, these areas.

A stepwise, pragmatic approach is therefore proposed to address the problems of illegal logging through the compulsory *Independent Validation of Legal Timber (IVLT)* - while providing a link or possibly integration with voluntary *sustainable forest management (SFM) certification*.

To illustrate this approach, a 'Sustainable Timber Trade' labelling system is suggested in three steps: 1) 'Timber from a Legal Origin', 2) 'Validated Legal Timber' and 3) 'Sustainably Produced Timber'. Each step is conditional on a certificate issued independently by an accredited third party verifier / certifier at different stages of the process:

1. The '**Certificate of Legal Origin**' (CLO) is the result of the successful verification – essentially through implementation of a log tracking system - that the logs or timber products: a) were legally purchased from the rightful owner and have legally been sold and transferred down the chain of custody to the point of reference of the certificate and b) conform to national or international product-specific regulations such as protected species and/or minimum diameters. The system would also periodically verify that duties have been paid and that allowed volumes of cut or quotas have been respected. Past, unsettled non-compliances may block the whole process. In the suggested labelling system, compliant logs and timber products could be labelled as 'Timber from a Legal Origin'.
2. The '**Certificate of Legal Compliance**' (CLC) is awarded where forest management was found compliant with specified national legislation and regulations including the terms of the concession agreement or permit. This essentially refers to the preparation and implementation of the management and harvesting plans, including the forest inventories. Logs or timber products already certified as from a 'Legal Origin' (CLO) could at this stage be labelled as 'Validated Legal Timber' if the CLO for the timber can be linked with a CLC for the forest the timber comes from.
3. The '**Certificate of Sustainable Forest Management**' (CSFM) refers to the certificate awarded or maintained as a result of successful forest management auditing against the principles, criteria and indicators of an international forest certification scheme such as the Forest Stewardship Council (FSC). It is suggested that logs or timber products already certified as 'from a legal origin' (CLO) and originating from a forest certified both as 'legally compliant' (CLC) and, in addition, 'sustainably managed' (CSFM) could at this stage be labelled as 'Sustainably Produced Timber'. Note: a certificate of 'chain of custody' issued under the forest certification scheme would not be enough to replace a Certificate of Legal Origin (CLO), whose scope is wider and which is based on advanced log tracking systems.

Independent Validation of Legal Timber (IVLT) covers the first and second steps i.e. verification of the legal origin of the timber (CLO) and verification of the legal compliance of the timber source (CLC). From producer to consumer, the IVLT system has the potential to provide:

- an effective tool to aid law enforcement by the Government
- a powerful market-based instrument, both for producers (market access, fair competition) and buyers (sound, transparent timber trade)
- reliable information for all stakeholders, locally and internationally.

3. THE PHASES OF 'INDEPENDENT VALIDATION OF LEGAL TIMBER' (IVLT) WITHIN A 'SUSTAINABLE TIMBER TRADE' PROGRAMME

Implementation will be easier and quicker, by establishing IVLT programmes in a number of producer countries and by having these programmes validated by importing countries through bilateral agreements.

Ideally, IVLT should be implemented as part of a comprehensive '*Sustainable Timber Trade programme (STT)*' to provide the long-term vision, policy and goals. Implementation would be a phased-in process, where the forest management standards of all producers are incrementally raised with each phase. The phases of the IVLT/STT programme in a producer country include, successively or simultaneously:

1. review and modification (if necessary) of legislation, forest policy and strategy and the institutional framework;
2. Independent Validation of Legal Timber' (IVLT):
 - demonstration (through independent third party verification) of the 'legal origin' of the logs or timber products – see above for the content of the 'Certificate of Legal Origin' (CLO);
 - demonstration (through independent third party verification) that the logs or timber products have been produced in accordance with the relevant national legislation and regulations – see above for the content of the 'Certificate of Legal Compliance' (CLC);
3. establishment of a certification support program (CSP) to help producers raise the standards of management and production from compliance with national standards to meeting the principles and criteria (or criteria and indicators) of an appropriate international certification scheme; and finally,
4. producers seek voluntary SFM certification, individually or as part of a group scheme.

Concurrently with the other phases development of national standards for sustainable forest management could be undertaken as well as national level monitoring of the forest sector.

There is one over-riding proviso for this approach to work: IVLT *must be compulsory at the national (or provincial) level within the producing country*. Support by national governments is crucial. Without this support in some major producing countries the approach will not work.

3.1 REVIEW OF LEGISLATION, POLICY AND INSTITUTIONAL FRAMEWORK

An essential precursor to the implementation of any program would be the review of the current forest institutions, legislation and forest policy. Institutional and legislative change may be required. Elements that would need to be in place prior to or during the early stages of implementation include:

- ♦ an **open, transparent and fair** method of providing access rights to the resource either through concessions or other methods;
- ♦ **separate institutional functions** for monitoring and detection, and, the granting of timber rights and law enforcement; and,
- ♦ **transparency**; an agreement that the results from the monitoring and verification can be **published** nationally and internationally on a regular periodic basis (i.e. monthly / quarterly) and on-line in real time and that both the programme and the verifier are placed under the scrutiny of civil society.

Legislation in many countries is already designed to promote sustainable forest management and only minor modification, if any, is needed. This proposal therefore builds on the existing legislation and progress already achieved. Often the problem has not been with the law itself but in the lack of proper enforcement, detection of infringements and subsequent prosecution of offenders. Depending on the country and the current status of legislation and policy, a new national forest policy and strategy may be required. This should be undertaken through an open and participatory process involving all key stakeholders. Provision should be made to ensure that this revision/reform process does not prevent implementation of the subsequent phases of the programme.

At the same time the current **institutional set-up** may not be suitable for implementing the systems proposed. It would therefore be necessary to instigate a programme of institutional change prior to or in tandem with the implementation of the first stages of these systems. Institutional change can be a major task and it requires skill and determination. A key element in institutional change is acquiring stakeholder support, which may not be easy when there are employment issues and vested interests at stake. It is therefore essential that a participatory, open and inclusive approach is taken involving all the stakeholders.

Another vital aspect to implementation is that the system must be **financially sustainable** in the long term. Donor funding can be used to finance the initial start-up costs, but in the long term a financially sustainable funding source is essential. The entity undertaking the monitoring and verification activities should be financed from funds which are not going to be diverted to other government spending projects. The fees should be regularly reviewed and raised to keep pace with inflation and developmental needs. Generally a management fee designed to cover the costs of monitoring and verification should be kept separate from royalties or the purchase price (which recompense the owner for the sale of the timber) and should not be paid into the central treasury.

3.2 INDEPENDENT VALIDATION OF LEGAL TIMBER (IVLT)

3.2.1 'Certificate of Legal Origin' (CLO)

The second phase is to set up a system to verify the legal origin and ownership of the logs or timber products plus other specific legal compliance elements. This is essentially a

comprehensive timber flow control programme combined with remote sensing, physical inspections and documentary verification performed in and around the forest area and down the chain of custody to the point of reference of the certificate. It will provide a 'Certificate of Legal Origin' (CLO) for the logs or timber products that have been produced and distributed by companies that can demonstrate compliance of:

- ◆ proof of ownership of the standing tree (i.e. a concession agreement, timber licence, purchase at a standing sale etc.);
- ◆ a verifiable chain of ownership from the stump to the point of export, sale or processing;
- ◆ payment of relevant area-based or log production-based royalties, taxes and fees;
- ◆ authorised volume of cut and/or quotas;
- ◆ conformity to national and international (e.g. CITES) product-specific regulations on e.g. species and minimum diameters.

Each certificate would have a Verification Schedule that would define the scope of the certificate: i.e. the origin in the forest, the chain of custody and ownership to the point of export and the relevant laws and regulations complied with at this stage. Once the product leaves the country, importers who wish to continue the certificate to point of final sale would need to establish an independently verifiable chain of custody at point of purchase to the final sale.

The existing log tracking technology and systems can easily be tailored to include details of ownership and sales along the chain. A registry could be established to provide information of the status of individual parcels of timber.

3.2.2 Certificate of Legal Compliance (CLC)

The third phase would be to issue a 'Certificate of Legal Compliance' (CLC) to compliant producers to guarantee that specified national legislation and regulations have been complied with for the relevant log production area as a result of auditing and monitoring management and logging in the legitimate production areas. This could include but would not necessarily be limited to: forest and environmental laws and regulations and concession agreement conditions. It will ensure that the management plans, including the forest inventories, and harvesting plans had been correctly prepared and implemented.

Again a Verification Schedule would be supplied with the certificate that would stipulate the laws and regulations complied with at this stage (and not already verified at Step One). Once the producer has been certified as legally compliant – for the areas verified at the date of the certificate – the Certificate of Legal Origin (CLO) would be linked to this CLC for individual logs or parcels of logs. The CLC would then pass along the chain of custody. As trading and processing occurs the CLC could be up dated to include these further operations. Optionally, the CLC could be up dated to show, for example if logs pass through a sawmill, that the sawmill complied with relevant environmental, health and safety and employment laws etc. Again if the importer wished to continue the certificate to the final point of sale then a similar verification programme would be required in the importing country.

Again a registry could provide information of the status of individual forests.

3.3 CERTIFICATION SUPPORT PROGRAMME (CSP)

In the absence of a compulsory IVLT programme, producers can always undertake CSP on a voluntary basis in order to prepare for SFM certification.

But CSP can be even more beneficial if implemented as a continuation of a compulsory IVLT programme and as part of a nationally co-ordinated effort to promote SFM certification. Participants would be able benefit from support provided by donors or a scheme like the Tropical Forest Trust. Once a country has initiated the first three phases, a certification support programme should then be instigated to encourage (through, among others, financial or fiscal incentives) and assist the local producers go to the next stage of undertaking voluntary certification.

A national or group CSP could also provide, through the use of consultants, NGOs or verifiers not involved in the national level certification (for reasons of conflict of interest):

- ♦ technical advice and support;
- ♦ contacts and networks within and outside the country; and,
- ♦ access to producers groups to facilitate group certification.

The CSP developed by SGS³ involves continuous auditing through three phases i.e.: Initial Evaluation, Development of the Management System and, finally, Implementation and Review of the Management System. The company commits to a Schedule towards meeting certification standards. The system also involves audit reports, audit statements and corrective action requests (CARs), and also a training workshop. The CSP does not certify timber. However a certificate can be issued to companies that participate and fulfil the commitments made in the Schedule.

3.4 VOLUNTARY SFM CERTIFICATION

Once producers have been obliged to raise standards to obtain Certificates of Legal Origin (CLOs) and Certificates of Legal Compliance (CLCs), and there is a certification support programme in place (currently optional), then the next step, to seek voluntary SFM certification, is not large. The benefits (in terms of access to better markets) would be significant.

With all producers within a given country, province or region raising forest management standards there will be scope for formation of producers groups to promote certification. With substantial numbers of producers applying for certification in a country, certification bodies would be able to form local units which would reduce the costs of certification.

3.5 NATIONAL LEVEL PROGRESS

At the national level further progress could be made by:

- ♦ continuously reviewing and improving the national (or provincial) **laws and regulations** against which legality is assessed;

³ More information on SGS's CSP can be found on <http://asi.sgsgroup.com/WWW/MY/MYFore.nsf/pages/forestry.html>

- ♦ undertaking or reviewing existing **land use planning** or landscape level management plans to agree national level priorities for conservation, watershed protection, forest production, agriculture, tourism and other developments;
- ♦ monitoring **actual land use** and occupation through remote sensing and ground verification in the whole forest area, to include areas not covered by concession agreements or timber licences, to prevent unauthorised conversion to other land uses; and,
- ♦ developing the **national standard for sustainable forest management** (principles, criteria and indicators) through participatory processes to be approved by key certification bodies.

The activities at the national level should be implemented concurrently with all the steps outlined above.

4. COSTS, IMPLEMENTATION AND FUNDING OF THE IVLT/STT PROGRAMME

The costs will depend on the circumstances prevalent in each individual country or province. Donor funding may be required to undertake the initial analysis and start-up costs, but once running the programme must be financially self-sustaining.

Donors could also support implementation of the first step (review of policy, legislation and institutions) by:

- ♦ providing technical support;
- ♦ funding the participatory processes;
- ♦ raising awareness; and,
- ♦ helping with mitigating measures to offset potential negative impacts of the proposed changes.

Once the required institutional and legislative reviews have commenced, there are a number of ways that the IVLT programme can be implemented. As an out-sourced service for example, an international verification company (with international credibility and a reputation to protect) - or a local joint venture formed with this company - could be given a contract to implement and run or co-ordinate the whole programme (to include remote sensing, log tracking and auditing of forest management). The verification company could in turn be monitored by international or local environmental NGOs.

The above approach however may not be attractive in the long term to local governments that may wish to see local institutions running the programmes. In this instance institutional capacity building could be undertaken through a build-operate-transfer (BOT) approach. A typical BOT process includes the following stages:

- ♦ a local institution is established to host the program (i.e. a new separate department, with different reporting structure to the department granting timber rights and enforcing the law, or a foundation or a not for profit company, or an NGO etc);
- ♦ an independent verifier (or joint venture) is contracted to build and operate the system - the verifier initially runs the programme and trains the staff;
- ♦ the programme, know how and staff are transferred over an agreed period, once appropriate milestones have been passed, to the local institution; and,

- ♦ the verifier audits and certifies the local institution.

An important aspect of the process is transparency: the verifier must be mandated to publish the results both locally and internationally – this could include information on the stage that has been reached by each producer or parcel of timber and what actions and timeframe are requested to achieve the next step. In addition local or environmental NGOs (within an Advisory Committee) should audit both the programme and the verifier.

In many areas the currently poor capture of existing royalties and fees would significantly increase when the system is implemented. In most cases the increase in capture of the existing fees would be more than sufficient to pay for the costs of running and updating the programme. The effect of increased accuracy of production figures would not be limited to royalties and timber related fees but would also have a spin off effect to increase the collection of other taxes and duties such as income tax, VAT, export duties, customs fees etc.

Options exist for encouraging producers to implement the required management changes. A specific, additional fee could be charged to companies in the first place but this could be balanced by a corresponding tax rebate to compliant companies.

The overall cost of implementing the system will benefit from economies of scale. It will be low in comparison to the overall value of the product and the trade flow (and low in comparison to royalties if they are set at the correct level).

The national or group Certification Support Programme (CSP) could be funded either by donors or the forest products industry. There are already examples (e.g. the Tropical Forest Trust) where purchasing companies pay a small levy to a fund which is then used to help producers raise their forest management standards to the level where they can successfully apply for certification. The kind of support required includes:

- ♦ technical assistance to design new forest management procedures;
- ♦ financial assistance to implement the new procedures and purchase new equipment;
- ♦ help with applying for certification.

Voluntary Certification would then naturally follow on from the CSP phase and should, once the producers have got to this stage, be routine. However further assistance may be required from the CSP to help implement 'Corrective Actions' identified in the certification process.

Donor support would probably be required to support the national authority develop the national standards.

5. BENEFITS OF IVLT PROGRAMMES

The main benefit of this proposal is to reduce the amount of illegal logging and illegal conversion of forest to other land uses.

Other benefits include:

- ♦ increased capture of royalties and taxes;
- ♦ increased control in the forest sector;

- ◆ improved environmental performance;
- ◆ improved standards of forest management;
- ◆ encouragement and reduced costs for voluntary certification;
- ◆ improved conditions for workers in the case of enforcement of health and safety and employment laws and regulations;
- ◆ prevention of companies / importers unknowingly purchasing illegal timber with the potential for negative publicity;
- ◆ provision of similar operating conditions across the timber trade;
- ◆ provision of a substantial marketing and trade facilitation tool (green lane for exports) that can also help companies with their environmental rating and due diligence audits; and,
- ◆ provision of documentation which might fulfil a basic requirement of committed buyers' groups and should satisfy markets with constraining public procurement rules or provide access to bilateral agreements between producer and consumer markets prohibiting the importation of illegally sourced timber products.

6. RECOMMENDATIONS FOR INDEPENDENT VALIDATION OF LEGAL TIMBER

Opportunities exist to support the implementation of transparent Independent Validation of Legal Timber (IVLT) programmes at the national level. Different stakeholders have different roles:

The International Community should:

- ◆ assist in the formulation of national forest policy and strategy;
- ◆ assist in the institutional review and implementation of change;
- ◆ recognise that voluntary SFM certification can only have a limited global impact to increase sustainable forest management unless it is combined with effective compulsory control;
- ◆ encourage Governments to set up independent legal compliance verification programmes;
- ◆ help strengthen Government enforcement of the law based on the results of monitoring and verification;
- ◆ implement pilot projects in the various regions;
- ◆ promote certification to producers in areas where IVLT programmes have been implemented.

Governments should:

- ◆ analyse the fiscal and other benefits of improved control of illegal operations;
- ◆ prepare a national policy and strategy to specifically combat illegal operations through reducing fiscal incentives for illegal practices and increasing risks of detection and prosecution;
- ◆ undertake institutional change where appropriate through participatory processes to eliminate conflicts of interest by separating the institutional functions of monitoring timber operations from the granting of timber rights and the enforcement of the forest laws;

- ♦ introduce independent verification of legal compliance as a key transitory instrument of the national strategy;
- ♦ strengthen enforcement mechanisms and actively prosecute offences under the relevant legislation;

The Private Sector should:

- ♦ recognise that responsible producers will benefit from the same operating conditions as companies that currently operate beyond the law, and also from improved marketing and increased protection of their resource base;
- ♦ recognise that 'legality' is a growing requirement and be proactive in endeavouring to turn legality into a competitive advantage;
- ♦ influence government decision making to strengthen supervision, control and enforcement of legal requirements;
- ♦ in countries with weak forest administration embark on voluntary independent verification of legal compliance as a step towards SFM certification.

7. CONCLUSION

The problems of illegal logging are widespread and the continuing loss of tropical forest derived from it devastating. Both the tropical timber resources and markets are in serious danger. The proposed programme outlined above is designed as a positive contribution to the debate of how to address these issues. The authors believe that the proposals present a credible solution to the problem but the proposals are no good without widespread support across the sector. Support is required from Governments, donors, the private sector, local communities and NGOs. Implementation in isolation is impossible.

The next stages therefore require increased debate among all the stakeholders, comment and revision of the proposals and then selection of some countries in three continents (South and Central America, Asia and Africa) where pilot projects can be implemented. Donor funding will be required.

The investment in these proposals is not large but the potential benefits huge.

Any comments or suggestions to this proposal would be welcomed by either of the authors.

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