

Using IATI data to enhance Bangladesh's AIMS

Final report

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This report follows on from the inception report concluded on 17th October 2015. It is informed by a mission to Dhaka in October 2015, which included ten meetings with development partners and five meetings with government staff, as well as numerous informal conversations in the Ministry of Finance.

For an introduction and overview of this work, please see the inception report. For the methodology, see the methodology report. For technical specifications, to track the development process, and for other information, please visit the accompanying microsite:

<http://bd-iati.github.io>

1. Introduction

1.1 A global standard for aid data

The International Aid Transparency Initiative (IATI) was launched in September 2008. IATI is a voluntary, multi-stakeholder initiative that seeks to improve the availability of aid information in order to increase aid effectiveness. IATI brings together development partners and developing countries, civil society organisations and other experts in aid information who are committed to working together to increase the transparency of aid. The IATI Standard is a machine-readable format for sharing aid information in a timely, accessible, comparable and comprehensive format. Since the agreement of the Standard in 2011, over 450 organisations, including the vast majority of official donors, have begun publishing to IATI, with varying levels of data coverage and quality.

The large volume of new data presents a significant opportunity to improve the quantity and quality of the data in recipient country aid information management systems (AIMS). In Bangladesh, the home-grown AIMS – with the source code owned by the government - and local developers, provided the opportunity to design and implement a module which allows users to import IATI data into an AIMS. This work was experimental and benefited from close and flexible collaboration with developers from a local Dhaka-based company, Technovista. It was undertaken as a small component of the DFID-funded Aid Effectiveness Project (AEP). The AEP was implemented by UNDP and hosted in the Economic Relations Division (ERD) of the Ministry of Finance.

There were two linked goals for this work: firstly, to demonstrate that IATI data can be used to improve the quantity and quality of data collected in the Bangladeshi AIMS, and secondly, to design and implement a process in the module which reduces the burden (on both donors and the government) of data collection whereby IATI data collection significantly lowers cost and effort as compared to the effort required for the existing manual data entry.

This report is the third in a series, and focuses on findings and recommendations from the implementation of the module. The inception and methodology reports can be found on the microsite, where you can also find extensive detail on the development process and technical specifications: <http://bd-iati.github.io>

1.2 Implementation

Establishing and implementing the IATI data import process required some substantial methodological development. Previous pilots and other work exploring the use of IATI data in country systems provided a good platform for this work (see Box 1). However, none have yet demonstrated a sustainable and scalable import process for importing donors' IATI data. In order to reach this stage and contribute to the global knowledge base, there were a number of other pieces of methodological development that were required. In this section we outline the process for developing the module.

Although IATI presents opportunities, it also poses challenges. IATI data is complex - partly reflecting the complexity inherent in the aid system. Designing a sustainable process to best represent the complex relationships between different actors and their activities was the main challenge that needed to be addressed to make IATI import feasible. The approach developed in this work represents a significant step forward in our understanding of how to handle these complexities – though it will certainly require further refinement.

Box 1: Previous work to integrate IATI data into AIMS

Development Gateway: IATI import module¹ and a recent report² on piloting IATI integration in five francophone countries.

Catalpa: Mohinga platform³ and presentations at IATI Members’ Assembly

Synergy: Pilot of using IATI data in Rwanda⁴

1.3 Sustainable processes for IATI import

The original terms of reference envisaged a pilot with three donors. Importing IATI data only as a pilot encourages the choice of non-sustainable solutions (such as donors-specific adjustments) which limits the usefulness of the exercise. Designing a module (a freestanding piece of software) to accept and import data from all donors and insert it into the Bangladesh AIMS significantly increases the value as unlike a pilot, after the project finishes, the module can be put into permanent use rather than just being a one-off demonstration. This shift posed additional challenges for the development of the module, particularly in such a short timeframe, but we believe that this risk has paid off.

1.4 Timeline

The timeframe for development was very short: methodological development and development of technical specifications took about one month. Software development then lasted for just over four months. A longer timeframe would have permitted another round of development (perhaps another 2 months), after receiving further feedback from donors. Some of the other limitations are discussed in section 2.6 below. Even this short timeframe was longer than the initially planned five months (September – January). We also undertook four missions rather than the initially planned two.

Table 1. Project timeline

Month	Progress
2015	
October	Inception report and first mission.

¹ <https://github.com/devgateway/iatiimport>

² <http://www.developmentgateway.org/2015/05/21/iati-and-country-systems-dg-working-paper/>

³ <http://mohinga.info/en/> and <https://github.com/catalpainternational/MohingaV1>

⁴ <http://www.aidtransparency.net/wp-content/uploads/2015/04/Session-4-Rwanda-DAD-IATI-Integration.pptx> and <http://www.aidtransparency.net/wp-content/uploads/2009/06/IATI-Rwanda-Country-Pilot-Final-Report-July-2010.doc>

November	Methodological development; methodology and technical reports.
December	Procurement of software vendor.
2016	
January	Selection of software vendor.
February	Second mission.
February-March	First half of development.
March	Third mission, mid-point development review.
April-May	Second half of development.
June	Fourth mission; final review of software; deployment of module; presentation to donors and Government.

The end result delivered by Technovista has far exceeded expectations, especially considering that the original mandate was to run a pilot for three donors.

2. Findings

Our main finding is that importing IATI data is achievable, but it requires some careful (human) interpretation of data in the first instance. Once that has been satisfied, data (especially financial data) can automatically flow in, reducing the burden of data collection and the need for human intervention going forward. Designing a generic solution (not donor-specific) is possible and can be achieved without overly complicating the user interface – the module has been tested with 15 donors. There are some clear limitations in data quality from certain donors; for these donors, more interpretation in the module or manual data entry in the AIMS will continue to be required until their data improves. In some cases, the data quality issues are so significant that they prevent those donors' data from being imported at all. The work also highlighted some limitations in the way the IATI Standard captures data.

2.1 Large-scale IATI import is possible and improves quantity and quality, but has to be handled carefully and requires human intervention

As we developed the module we gradually added complexity over time, testing with more and more donors. By the end of the development process, the module was able to work with data from at least fifteen donors: Asian Development Bank, Belgium, DFID, Canada, EIB, EU, GAVI Alliance, Global Fund, Netherlands, Sweden, Switzerland, UN Habitat, UNDP, World Bank, WFP. The list included some large donors not yet captured in the AIMS. In section 2.4 we discuss our difficulties importing data from different donors.

With a small amount of human input, we were able to import almost all IATI fields into the AIMS, including sub-national locations and project documents. Results and conditions don't have a location in the AIMS at the moment. We did not have to make any bespoke per-donor tweaks in the source code. If something could not readily be handled automatically because of limitations in that donor's data, the donor would need to help interpret it or it would not be imported (and could be manually entered into the AIMS later).

2.2.1 Improvements in data quality captured in AIMS

In line with past work, data availability comparisons with different donors suggested IATI import would lead to significant improvements in the quantity and quality of data captured in the AIMS.

The module follows the agreement between donors and the GoB that reporting to an AIMS is a donor responsibility. The module was tested with current IATI data from fifteen donors and received feedback from several, however time constraints, made it impossible to run through the full process of IATI data import with all donors in person. The data quality findings here are therefore assumptions about how donors would use the IATI import module. As previously stated, donors' input is vital for interpreting the data accurately. Donors are best placed to know which projects (and sub-components, in some cases) should be imported into the AIMS and which should be excluded, given in-country agreements about the types of data that are

reportable to AIMS. Data quality metrics have been established for the AIMS and it will be possible to monitor improvements over time.

2.2.2 Greater granularity and more detail

With that caveat in mind, we can highlight a few of the data quality improvements that were identified during the development process. For example, one DFID project saw a remarkable improvements in the granularity of data captured (see Table 2, below).

Table 2. Improvements in detail for DFID project “Promoting Financial Services for Poverty Reduction in Bangladesh”

Field	AIMS (before IATI)	AIMS (after IATI)
Disbursements (number)	8	177
Locations	0	17
Project documents	0	7

Greater disaggregation of financial data will be particularly valuable for two reasons. Firstly, it allows the data to be disaggregated. Previously, one disbursement covered the period 2007-2014. This is in line with recommendations from the Government in order to keep the burden on donors manageable. However, it was therefore not possible to identify how much was spent in each year, or each quarter. There are understandable reasons for this: entering quarterly disbursements for this period (7 years) would require 28 entries to be calculated from the donor’s own system and typed into the AIMS, a significant burden when applied to all a donor’s projects. Importing the data from IATI, however, can occur automatically once the project has been mapped, and new disbursements can flow in automatically.

Secondly, where financial data covers a precise date rather than a range of dates, more accurate currency conversion is possible. In the case of the single DFID disbursement covering 7 years cited above, currency conversion (from GBP to USD) is inaccurate – in the course of 7 years, the GBP:USD exchange rate between these two currencies fluctuated significantly (from virtually 1:2 to 1:1.47 at the time of writing). Accurate currency conversion is vital if the data is to be useful in other Government of Bangladesh processes.

2.2.3 Greater volume in financial data

We did note some improvements in the value of funding captured when using IATI data as opposed to manually entered data. New projects not yet captured could easily be imported, and more up to date financial data also increased the volumes recorded in the AIMS.

However, again, it is important to stress that the module allows donors to make their own decisions about whether they would like to use the financial data in IATI or continue manually entering data into the AIMS. Donors can compare the amounts in their IATI data with the values currently captured in the AIMS and decide which data is a more accurate reflection of their spending in country. Donors are best placed to do this as they have access to the best data about their spending.

2.2.4 Using the best data from multiple sources

Projects which involve several IATI publishers will have data available from several IATI datasets as well as the data manually typed into the AIMS. Once the process of mapping an IATI activity to an AIMS project has taken place, the managing donor often has several sources of data available, allowing them to choose the most useful one. For example, the financial data from a funding donor might be the most up-to-date, whereas the project location might only be available from the implementing donor, and the local AIMS data will probably have the only translation into Bengali.

2.2.5 There will be differences in the data captured in different systems

There are some clear reasons why amounts may be different between IATI data and the AIMS – they are likely to be at least slightly different. This should not come as a surprise, given that a main goal of using IATI data is improving the quantity and quality of data collected. If the data were already perfect, there would be less of a reason for trying to use IATI data. These discrepancies could be a result of some of the following factors:

- **More timely data in IATI:** the most recent financial data is available in IATI but has not yet been manually entered into the AIMS.
- **Exclusion of certain components not reportable to AIMS:** some projects are not reportable to the AIMS in Bangladesh if they have not completed the government approvals process. Components of projects should also be excluded if they include spending before the government approvals process completed (for example, procurement or other preparatory work) or if they are for donor project management.
- **Human error:** when entering large amounts of data manually into any system, human error is inevitable. For example, accidentally adding an extra digit would increase the value of a project by at least a factor of ten.
- **Currency conversion:** using exchange rates from different sources could make small differences to the amounts when converted to a different currency. Using a different date will make a larger difference if there have been significant fluctuations in exchange rates.
- **Projects deliberately excluded from IATI:** donors may choose to exclude certain types of projects from publication. This could be due to principled exclusions, e.g. for security or safety reasons. It could also be due to other policy reasons, which may be less clearly defined (or somewhat arbitrary) and harder to anticipate. For example, Germany excludes from publication all projects which were closed as of January 2014. The World Bank excludes many “trust fund” projects where they do not receive any funding from the World Bank (this may change in the near future).
- **Fields deliberately excluded from IATI:** donors may not yet have begun to publish certain fields to IATI, though that information has been provided to the AIMS locally. For example, the Netherlands does not publish projected disbursements in its IATI data, though this information has been provided to the AIMS.
- **Data accidentally excluded from IATI:** there may be cases where information does not get published (or is published incorrectly) due to bugs in data generation processes.

These issues are not a reason to use or not to use IATI data in preference to data manually entered into the AIMS. They merely serve to illustrate the range of reasons why numbers may differ and the need to allow users – principally, in-country donor staff – to decide which value is

most accurate. In some cases, donors will need to consult with staff in headquarters who are responsible for generating the data. The fall-back to any issue is that donors can continue to use the AIMS as at present – continuing to enter data manually. However, they can also choose to import particular fields or projects from IATI.

2.2.6 Merging projects and avoiding double-counting

All systems – regardless of whether the data is captured from IATI or manually entered into AIMS – have to handle double-counting and duplication where the same project (or overlapping components of the same project) are reported multiple times from different perspectives. The IATI Standard does have some mechanisms to handle this (e.g. traceability at the transaction level, related activities), but usage amongst donors is far from sufficient, and even if the data were published perfectly according to the Standard, some human intervention would probably still be required. However, with that human intervention (and an appropriate interface), using IATI data without introducing double counting is possible.

2.2 Design considerations

2.2.1 Necessity of human intervention

We viewed manual intervention in IATI import as a necessity for several reasons. Firstly, limitations in terms of either the data or the IATI Standard mean that additional information needs to be captured at the data import stage. Some pieces of information required at the country level (but not present in IATI data or the Standard) need to be captured. Other information needs to be interpreted or explained by humans – particularly how activities published by different organisations relate to each other.

Secondly, and particularly as the use of IATI data in country systems is still in its infancy, there are good arguments for retaining human intervention to check or validate the data. Even if the data and standard were perfect, it is important to proceed carefully to verify the data and ensure that it has been correctly interpreted. These broader processes will also be strengthened if donors take responsibility for the data they are importing, which they can only do if they have sight of the data. Otherwise, there is the danger that country offices do not recognise the data published by headquarters and refuse accountability for the information that has been entered about their activities. This may also be an issue where IATI data lacks a notice that it can be considered a publisher's official data.

While the first set of issues can be addressed through improving the quality of data published in IATI – by improving the way donors publish and some improvements to the Standard – the second set of issues will likely remain for some time until both donors and government have confidence in the quality of data that is being published. We do not see “one-click import” as either realistic or desirable in the short or medium term.

Throughout the module, where possible, we tried to guess the correct response to reduce the labour intensiveness of the work, but requested users to correct these responses where they were inaccurate. This happens at each of the stages. For example, where an organisation is using multiple levels of activities (e.g. projects and sub-components, often referred to as a

“hierarchy” in IATI), we try to guess the correct level by seeing which level has a greater match with projects already in the AIMS. We allow the user to adjust this if they disagree.

The area that probably required the greatest human intervention was around implementing organisations. Given the limited and inconsistent use of organisation identifiers in IATI, it is necessary for users to interpret each implementing organisation reported in the IATI data and determine how they relate to organisations already stored in the AIMS. Where the names of implementing organisations are individually identified in IATI data (the Asian Development Bank is a good example), we were able to fairly reliably compare and match them with the names of implementing organisations in the AIMS. Where the implementer was recorded as ‘International NGO’ this required input from a user with detailed knowledge of the project to make the data useful.

2.2.2 Keep the complexity away from users, where possible

Our intention was to keep complexity of IATI data away from users where possible, while asking them to take decisions where we required human intervention to interpret the data.

All of the data retrieval happens automatically behind the scenes. We retrieve data nightly from the IATI Datastore, and tie specific reporting organisations to funding organisations already captured in the AIMS. We convert to a standard version of the IATI Standard (v2.2). At no point does the user have to touch or see XML.

Mechanisms were required to match projects reported in IATI data with those reported to the AIMS. We initially developed an interface to allow projects to be manually grouped and matched from IATI to the AIMS, using a “drag and drop” interface. However, in Bangladesh the project ID field in the AIMS was fairly consistently populated with the same (or similar enough) ID codes used in donors’ IATI data. and so we were able to take a shortcut and compare IATI identifiers with AIMS project codes. We therefore didn’t have to develop a more complicated methodology of trying to match projects by using other information (for example, trying to compare titles in each system, or with matching algorithm based on a combination of sector, dates, keywords, involved organisations etc). This allowed us to significantly simplify the process.

2.2.3 Donors work differently; their data is also different

We had to progress donor by donor due to the variety and complexity of different donors’ IATI data, and the need to understand how different donors were using the IATI standard, and the AIMS. Data cannot be imported automatically in bulk form. Rather, a more careful and somewhat manual process is required – requesting people who know the data well to interpret it and explain how it relates to other information. This is particularly the case where projects are reported by more than one organisation. We reasoned that the people most likely to understand individual donors’ data are those donors themselves; this fit well with existing data collection processes in Bangladesh, where donors are themselves responsible for entering information to the AIMS.

Working through donors individually had an additional advantage of allowing us to take a closer look at the quality of individual donors' data. We discuss issues arising from this work in section 2.4 below.

2.3 Practical considerations

2.3.1 Relationship with developers

We were able to complete this work in a short timeframe for a three of reasons. Firstly, a local IT company, Technovista, was fast, flexible and responsive to requests and had two programmers working full time for the development period. A close, collegiate and open working relationship was conducive. Technical assistance with a detailed understanding of both IATI data and aid management helped steer the development process and allowed experimentation with different approaches until we reached a solution that worked in the generality of cases.

Secondly, the source code for the AIMS is owned by the government and was originally developed by Technovista, meaning that there were no issues in terms of gaining access to the code, or having the rights to modify it, and that we could get moving quickly. One of the programmers had worked on the original AIMS, which also meant that much of the terminology was familiar. However, as long as there is sufficient guidance from team members with IATI and aid management experience, there is no requirement for AIMS programmers to have this knowledge. This significantly increases the choice of developers available for similar work.

Thirdly, the contract with UNDP allowed many trips at short notice to Dhaka when needed and convenient for ERD and Technovista. Four missions rather than the originally planned two were needed to get sufficient contact time. Software development (especially given that it was experimental) required significant face-to-face time between ERD, the developer and the technical assistance. It is not something that can be done remotely, or with only a few visits. Otherwise, some of the many small details upon which the quality of the system depends can be missed, because they are difficult to communicate. The danger is then in creating a technically good system that is not a good fit for the context. Working remotely with Technovista generally worked well – however, face to face time was invaluable and the additional missions we undertook were important for refining the end product.

The software development was not as technically complicated as originally expected. Technovista suggested the project was “low complexity” in comparison to the projects they usually undertake. The most challenging part was the methodology – working out how to interpret the IATI data, including handling different ways donors could structure their data and common ambiguities or limitations in the quality of the data. Interfaces that made sense in terms of that data as well as aid systems and business processes then had to be designed and tested.

2.3.2 Need to develop context-sensitive processes

A few features of the context in Bangladesh were important to consider. As with many AIMS, donors are responsible for entering their own information into AIMS. This was not only an agreement in principle – in practice, donors generally were entering their data into the system

themselves. This feature was key to replicate in the design of the IATI import module: the main users should be donor staff in country offices.

Secondly, projects cannot be reported to the AIMS until they have gone through the government approvals process. There is no field in IATI data for identifying projects (or their sub-components) that have been approved. It was therefore necessary for the interface to allow projects and sub-components to be deselected according to the knowledge of the user (donor staff in the country office) about whether a particular project has yet been approved.

Thirdly, capacity considerations were important to consider but also a somewhat moving target, which posed a challenge. At the outset of the work, there was quite significant technical capacity within ERD. Indeed, ERD could probably have supervised software development themselves. However, as the Aid Effectiveness Project drew towards a close (end June 2016), several of the more technical staff left. The technical assistance had to take a much closer part in the management of the development process than originally anticipated.

Capacity constraints could pose problems for ongoing maintenance and development of the module. Moving donors from manual reporting to automatically importing data from IATI should rapidly lead to a significant reduction in burden and increase in data quality. However, that will require some technical support in helping donors use the module, handling more difficult data and dealing with unforeseen ways in which donors can publish. The module has been designed to be as user friendly as possible and the manual should help answer most questions. However, there will inevitably be questions and issues where technical support will be required.

2.3.3 Don't view the AIMS in isolation

A final consideration is that the AIMS needs to be seen in the context of other Government of Bangladesh systems and should not be seen apart from them. The AIMS requires inputs from some of these systems, for example retrieving exchange rates from Bangladesh's central bank. The Bank of Bangladesh kindly provided an API with monthly averages for exchange rates from 20 currencies and agreed in the future to also provide daily rates. These rates are now retrieved automatically, whereas before they had to be manually keyed in each month.

The AIMS also provides inputs to other ERD systems, particularly the Foreign Aid, Budget and Accounts (FABA) wing of ERD. FABA needs data on aid projects for internal ERD budgeting processes, including debt management. It also collects data for the budget office of the Ministry of Finance. If good quality data could flow through to FABA from AIMS, it would not only reduce duplication of effort on the part of both ERD and donors from parallel data collection processes. It would also strengthen the individual systems – FABA would gain a good and reliable source of data at low ongoing cost.

Finally, AIMS also needs to be seen in the context of the various ERD wings overseeing relations with different donors. We had the opportunity for discussions with only a few wings, but it is clear that they could benefit from better quality data and from not having to chase donors to obtain the data they need (particularly for the purposes of monitoring project execution).

2.4 Limitations in IATI data from particular donors

The solution we designed does not set a minimum data quality threshold for importing data to the AIMS. It is up to donors to decide whether they think their data is an accurate reflection of their aid activities. However, there was a clear mix in the quality of data. In some cases, the data quality issues were so significant that it was not possible to use the data. In other cases, particular fields were hard to use. We include some of the more important limitations here.

2.4.1 Activities that don't look like projects

In some cases, it is hard or impossible to map the activities published by several donors to actual projects captured in the AIMS. UNICEF (and possibly UNFPA) publish “results” rather than projects, as part of internal efforts to “manage by results”. However, a side effect has been to obfuscate projects from their internal systems and IATI data. As a result, it is impossible to map UNICEF and UNFPA activities to the projects they currently report to the AIMS. It appears that this is due to systems limitations, which also appear to have some negative implications for the way that these organisations’ country offices are able to manage their programs. These systems limitations should be urgently reviewed.

In other cases, it is very difficult (maybe not impossible – just time-consuming) to map activities in IATI to projects in the AIMS. USAID publishes very granular activities that roughly correspond to a “contract”. Each project may (and normally does) have multiple contracts (“awards” in USAID terminology). These contracts would ideally be combined into single activities to represent one project. Secondly, it appears that a very large number of (often quite small) administrative spending lines are being published. Filtering these out helps to reduce the “noise” in the activity data, but this meant that we had to add a new feature to the interface to make possible this sort of manual filtering. Thirdly, the US uses a hierarchy that has a “sector” as the top-level activity. This is unlike any other IATI publisher: a sector is not a real unit of aid, and in IATI data should instead be published as a classification of an activity.

2.4.2 Generic, broad, or insufficiently specific organisations

A significant issue we encountered was the number of publishers that did not identify a specific organisation as the implementing organisation of a project. There were several cases where DAC Channel Codes were used instead of specific organisations. This led to many instances of organisations such as “INTERNATIONAL NGO”, “RECIPIENT GOVERNMENT”, or “OTHER” (as in DFID’s data), or “NATIONAL EXECUTION” (as in UNDP’s data). In at least one case (Australia’s DFAT) there were no implementing organisations listed.

Where specific organisations were listed (e.g. “Economic Relations Division, Ministry of Finance”), we could generally guess which organisation this was referring to and map to the organisations already listed in the AIMS (the Asian Development Bank’s data was particularly good on this front). However, where only generic or broad categories were stated (as in the examples above), donors will have to manually enter this data in the AIMS.

2.4.3 Other data quality issues

There were other issues that were much more limited to specific donors. In the case of Germany, the data shows cumulative disbursements to date, rather than providing specific disbursements or at least the total amount in each month. This financial data cannot be used, as the full amount of the disbursements for all projects is stated to be the day on which the most recent publication took place. In the case of the World Bank, a large number of projects are missing, as the World Bank does not currently publish projects for which it is just the implementer and where the projects do not receive any funding from the World Bank's own resources. Most trust fund projects therefore do not appear. This posed some challenges in trying to map other donors' contributions to trust funds to projects managed by the Bank. The World Bank also aggregates financial data by quarter which means it is not possible to slice the data by month, and would also make it difficult to use the data in countries with a fiscal year that doesn't map to the same quarters of the Gregorian calendar (Afghanistan, Iran and Nepal are three examples of such countries).

2.4.4 Donors with no usable data

Some donors don't have any data that can be used. Either they have not begun to publish to IATI at all, or they are republishing CRS data annually. This data is far too infrequently published and is not timely enough to be useful for aid management at country level. These donors will need to continue manually entering their data into the AIMS, while other donors will be able to automate much of the work. However, hopefully in time, the module will provide positive incentives to these donors to begin publishing good quality data to IATI. In the meantime, the better quality data captured in the AIMS as a whole may also provide some motivation to provide better data manually. The benefits of the IATI import module are therefore not restricted to those donors already publishing good quality data.

2.5 Limitations in the IATI Standard

2.5.1 Lack of organisation identifiers, particularly for public bodies

The sometimes poor quality descriptions of some implementing organisations is a major constraint to using this data as part of AIMS. The starting point should be to improve these descriptions. However, even if the text of these fields were improved, there would still be a need for human intervention as the text of these fields is often insufficiently precise. Overcoming this problem would require donors to consistently use the same identifiers to refer to the same organisations. This issue is partially resolved for NGOs and the private sector, as codes issued by national registration bodies can normally be used as authoritative identifiers (though online, public databases of these identifiers may not always be available). However, for public bodies – particularly in recipient countries – there are generally no such identifiers available. Developing a consistent methodology for referring to these bodies will be vital if this part of the process, mapping to implementing organisations, is ever to be fully automated.

2.5.2 Avoiding Double Counting

Projects where more than one organisation is involved are hard to import in a way that avoids double-counting. There are some mechanisms in the IATI Standard for resolving this:

traceability of financial data allows you to see how financial data flows through the chain, for example. However, it is hard to identify activities which involve co-financing or contributions to trust funds, or which are contributions to groups of projects that are managed by other organisations.

The IATI Standard does provide the ability to refer to the activity identifier of another organisation's share of a co-financed project; however, the IATI Standard website could provide clearer guidance on how to effectively implement this. Trust fund projects are not well identified in IATI and there is also insufficient guidance on how trust fund or pooled funding type arrangements should be structured. It would be useful to have consensus and guidance on how to identify each of the following types of activities:

- Contributions to pooled / trust funds (which may fund many projects)
- The pooled / trust fund itself
- Projects that are funded out of that pooled / trust fund.

Similarly, there was not sufficient use of the 'related activities' element which could be used to identify co-financing. In fact, none of the organisations we worked with used the "co-financing" related activity type. Solving double-counting for official donors will be vital if this work is to be effective.

As explained in section 2.6.2 below, we only worked with data from 'official donors', typically bilateral and multilateral aid agencies. However much IATI data is published by implementing organisations, NGOs and foundations. If the interface were expanded to include these organisations who typically work further down the chain on most projects, the need to solve issues of double counting would be paramount.

2.5.3 Exchange rates and interest rates

We were fortunate to have access to an API from the Bank of Bangladesh which allowed us to perform fairly accurate currency conversion. However, in the case of loans, exchange rates become much more important as debt servicing and repayment often must be according to a specific exchange rate agreed in advance between the government and donors. In IATI, there is no way to state a specific exchange rate alongside disbursements. Interest rates are also vital for understanding the nature of loans and for debt management. There is no mechanism for sharing this data in IATI, even if donors were willing to do so.

2.5.4 Verifying data and ability to contact the publisher

Data entered manually into the AIMS is formally verified by local donor staff as the donor's official data, which the government can then publish and donors can be expected to stand behind. This is not the case with IATI data unless there is manual intervention of the form advocated in this work. IATI data generally does not provide specific contact details, is of unclear provenance from the perspective of recipient countries and is therefore not considered official data that can donors can be help accountable for. This is particularly problematic when the contact given for many activities is a generic email and is therefore not sufficient to verify the validity of data. It is also problematic when local donor staff are not aware of the source of IATI

data and how it may relate to the data in their internal project management systems at country level.

2.6 Limitations of this work

Aside from the challenges listed above, additional limitations were necessary to restrict the scope of the work and ensure that our goals were realistic and achievable. Other features of the environment in which we were working may also limit the transferability of our findings and the relevance of this work in other contexts.

2.6.1 Language

English is quite widely prevalent in the Bangladesh government and the AIMS itself is in the English language. Outside the government, the lack of Bengali project titles and descriptions will clearly become a problem for increasing access. In countries where use of English is less widespread, there may be more issues in using the data, though we did not explore these. The module was developed to take English versions of data published in multiple languages (e.g. Canada publishes titles in English and French) so it could probably be adapted to select a different language. There were a few cases where information was published in a language other than English; in these cases, donors can choose to exclude that information for now and continue manually entering it into the AIMS.

2.6.2 NGO data and traceability

It was decided early on to focus on official donors for several reasons. Firstly, the issues of double counting are difficult enough to resolve when working only with official donors let alone trying to include many other levels of implementing partners. Secondly, the AIMS is not set up to handle multiple levels of reporting (i.e. reporting the same project multiple times from different perspectives); indeed, doing so while avoiding double-counting is a particularly complex problem to overcome. Thirdly, from a practical perspective, working with data from a smaller number of organisations limited the scope of the work and simplified testing and development.

Nevertheless, some of the techniques that we have developed for merging and delegating projects from different organisations could potentially be applied to incorporate NGO data. It may also be the case that the software could be applied to NGO data with some limited adjustments, though we did not investigate this possibility.

2.6.3 Interface and generalisability of the software

There were several iterations of development and we are pleased with what has been developed in such a short time, the interface is still somewhat complex. This is partly because it is trying to do some quite complex things, particularly in merging projects from different organisations. It was also probably somewhat inevitable given the experimental nature of the work and the need to get something working. However, it would certainly benefit from a further round of development to simplify complex steps and reconsider user experience and design, particularly following user feedback.

The module itself could potentially have been more generalised to deal with different sorts of systems and to have a looser relationship with the AIMS with which it interfaces. Indeed, this was the intention at the outset. There were a couple of reasons why it was consciously decided to compromise on this point. The main issue was limited time, meaning that it was necessary to develop very rapidly without the time to spend on adding further layers of abstraction into the data model. Getting a first working version in Bangladesh would be useful both broadly in other contexts and narrowly in Bangladesh. Broadly, the methodological developments could be directly applied in other contexts and the software could (without too much effort) be adjusted to work with a different AIMS. Indeed, it is likely that some adjustments would be required regardless of the nature of the module developed. A good working version in Bangladesh should also provide an important demonstration effect that this is possible and provide motivation for further work in this area. Having a good working version in Bangladesh will also support and strengthen the AIMS in that particular context and in time should support development more generally.

3. Recommendations

This section reflects on the findings and outlines some recommendations for donors, recipient countries, software vendors, and the wider IATI community.

3.1 Donors

There are two main sets of recommendations for donors: firstly, to improve data quality, and secondly to prioritise support for similar initiatives in future. Donors are listed first in this section because addressing these two sets of challenges will provide a strong boost to efforts to use data as part of country systems and elsewhere.

3.1.1 Improve data quality

There were fifteen donors whose IATI data was good enough to begin importing into the AIMS. However, there were some donors whose data was not possible to use, and many donors' data had some shortcomings. There should be a compelling business case for all donors to improve the quality of their data. Some small changes at headquarters could save donors hundreds of staff days per year, as well as making their aid more effective and reducing transactions costs on recipient country governments.

1. **Ensure you're publishing projects.** This may seem like a really basic point, but several donors were publishing activities that are not meaningful or useful units of aid. This issue came up to varying degrees with UNFPA, UNICEF and USAID data (see section 2.4.1 above).
2. **Use parts of the IATI Standard that can help avoid double-counting.** Donors should refer to related activity identifiers, particularly where they are involved in projects with other donors. The documentation and guidance on the IATI Standard website should be improved to clarify how this should work (see section 2.5.2 above).
3. **Provide disaggregated financial data.** Granular financial data is important for being able to slice the data in different ways and may have significant implications for currency conversion depending on the degree of fluctuation in exchange rates. This meant we couldn't use Germany's data, and could also be improved in the World Bank's data (see section 2.4.3 above).
4. **Improve the identification of organisations.** Where "implementing organisations" state generic categories of organisations, it is not possible to map to specific organisations in the AIMS. It is also much harder to avoid double-counting. This was an issue with DFID and UNDP data (see section 2.4.2 above).
5. **Provide frequent and timely data.** Annual re-published CRS data is of no value in country systems as it is far too out of date to inform decision-making. This was an issue with Japan's data. Quarterly data is the minimum that is requested from donors to enter into the AIMS, so donors that are publishing less frequently than this will need to continue manually entering financial data. Monthly data is also required in ERD for both budgeting and monitoring project execution.
6. **Provide forward spending data.** Some donors are providing this data in the AIMS but it is still not available in many donors' IATI data. This is vital data for budgeting processes.

7. **Ensure your data is being published in an appropriate language.** In a couple of cases, there were titles and descriptions that were not published in English, even where it was stated that the data was in English. In countries where the use of the English language is not so widespread, publication in other local languages will become more important.
8. **Look at (and use) your own data.** In a couple of cases, the data that is being published is hard to reason with. Using a tool like D-Portal to take a look at the data could help to bring to light some basic issues with the content and structure of the data.
9. **Use IATI data internally.** If IATI data was used for internal processes, donors local staff would be much more familiar with and comfortable with using it to report to recipient countries. Any issues would also be much more quickly identified.

3.1.2 Prioritise support for (and fund) more work to use IATI data

This work was only made possible through the support of DFID. It was vital to have some time for methodological development and to allow some significant management, oversight and course correction over the period of software development. It also helped that, following a USAID outreach mission in September 2014, there was greater awareness among donors than might otherwise be expected. However, in order for this work is to be taken forward elsewhere, we recommend greater investment and outreach to donor country offices.

10. **Greater investment is required.** More research, methodological development, technical support and software development is needed to take this work forward and to develop sustainable, scalable processes. Much of this work could have been undertaken two years ago had funding been available. There is a clear opportunity to create a virtuous circle here, whereby the use of IATI data in a few countries provides strong incentives to improve the quality of data and for others to begin publishing. Support could either be channelled through the IATI budget or donors could commit to directly support particular efforts in various countries, but some coordination would be helpful.
11. **Need for outreach to donor country offices.** There is a need for greater sensitisation of donor country offices to the potential of IATI data. Country offices should be encouraged to view this as important work – not just in terms of transparency, but also improving the effectiveness and impact of their projects. At the same time, country offices need to recognise that efforts to begin using IATI data will take some time as techniques and software are developed. So there is also a need for patience, as well as a nuanced understanding that progress will depend on the quality of each donor's data.

3.2 Recipient countries

The leadership role of the Government of Bangladesh was vital for completing the work in such a short period of time. Political commitment to IATI and a good understanding of some of the technical and policy questions raised in beginning to use this data created a supportive environment. The decision to proceed with a home-grown AIMS – giving the government control of the source code – and use of local developers provided vital flexibility. The government was also fortunate to have some in-house technical capacity early on which supported procurement.

1. **Push your vendors to incorporate IATI data in your AIMS.** If you are procuring a new AIMS, ensure not just that it is “IATI compatible” but that it really handles things such as double counting and merging projects when they are published by multiple organisations. Consider in advance how importing IATI data would relate to and support your existing business processes. Consider hiring technical assistance to support the process of procurement and monitor the process of development.
2. **Take a pragmatic approach to using IATI data.** IATI can be used to reduce the burden of data collection and improve quality for those donors that have good enough data. That will provide more time for focusing on donors whose data is difficult to get hold of, and for shifting to using the data to improve effectiveness and impact of development cooperation. Donors can continue to use manual data entry if the data is not good enough, or if certain important fields are missing.
3. **Take steps to prepare for IATI import.** Sensitise donors at the country level to the potential of using IATI data. Write letters to your donors indicating your interest in beginning to use their data. Encourage donors to ensure they are using the correct project IDs in the AIMS – the fact that donors were already using the correct project IDs fairly consistently made it much easier to map IATI activities onto AIMS projects

3.3 Software vendors

Vendors have a key role to play – both as the main technical conduit to recipient countries already using AIMS, and in developing techniques and software to begin to handle this data.

1. **See if the findings from this work could be relevant in your software or if you could improve on them.** Consider in particular techniques for avoiding double counting, delegating and merging projects, the ability to merge projects from IATI and AIMS in a somewhat nuanced way, and the ability to exclude individual project sub-components. The challenge is to develop an interface that is simple but also allows significant flexibility to allow import to be tweaked for each project and allow a mix of data from IATI and AIMS to ensure you can get the best data from each system.
2. **Focus on allowing humans to make decisions only they can make, but simplifying everything else they don’t need to think about.** Things such as retrieving data, converting to a standard version of the IATI Standard and currency conversion should all be automatically handled behind the scenes. It is clear that the interface developed could be further simplified along these lines: there are probably some options which are exposed in the interface which could also be hidden (for example, where the impact of selecting different options may be limited, or where users consistently select a particular option).
3. **Consider this a core or standard feature of any AIMS going forward and a fundamental part of your business model.** As it is now clear that IATI data can be used in country systems, AIMS will likely be placed at a competitive disadvantage in future if they are not able to handle IATI data. Investing in good quality IATI import at this stage – and not as an add-on or afterthought – will pay dividends in future.

3.4 IATI Community

The IATI community also has an important role to play in enabling and driving this work forward. Some of these are recommendations for the Members' Assembly, Board or TAG to consider, but they are relevant for all.

3.4.1 Setting goals and vision

1. **Set an ambitious goal for use of IATI data.** A statement of intent to meet certain targets could be helpful for providing direction and momentum. For example, the number of countries' annual aid reports that use IATI data for at least 50% of their total aid within the next three years. This doesn't necessarily mean that the IATI Secretariat needs to do the work to achieve that goal – indeed, that may be unrealistic given available resources. However, a goal for the IATI community (perhaps a collective commitment from the Members' Assembly) would provide a focus and a benchmark to assess progress over time.

3.4.2 Data quality

1. **Encourage donors to use components of the IATI Standard that help to avoid double-counting in multi-donor projects.** Much of the work around traceability to date has focused on relationships between donors and their NGO implementing partners. However, donors could potentially make some rapid improvements in data quality from working together to refer to each other's activities in projects involving multiple donors. Major implementers such as UNDP and the World Bank should be two priority targets for such efforts.
2. **Focus efforts to improve data quality on official donors.** There are a handful of donors that are still publishing very poor quality data. Of particular concern are cases where donors are not publishing projects as the main unit of aid, because the data is then either impossible or very difficult to use. Centrally-provided technical support should work with such donors to improve the quality of data they are publishing. There is likely to be a much higher return on investment from improving the data quality of a small number of organisations with large volumes of spending, than focusing on many small organisations. This should be combined with more intensive outreach to those large donors who are not publishing data to IATI, or only publishing historical CRS data. In Bangladesh, two of the four largest donors are Japan and the Islamic Development Bank.
3. **Develop mechanisms for feedback on data quality.** There is no consistent way for sharing issues with individual donors' data. Such a mechanism would be helpful for users of the data to understand the challenges they are likely to face when trying to import IATI data, as well as helping donors to track how their data is being used. It may also be interesting to consider how to share feedback where manual changes to IATI data were necessary at country level.
4. **Push more strongly for monthly data, and restate that quarterly data is the minimum required under the Standard.** Where data is published less than quarterly, it is fundamentally not useful. Countries still need this information, so they won't use IATI data – they will go back to donors with manual data requests.

3.4.3 IATI Standard

1. **Improve guidance on mapping together activities reported by different organisations to avoid double counting.** A consistent methodology for stating that an activity is a contribution to a trust fund, the trust fund itself, or a project funded out of it would be helpful for automating more of the process of identifying potential double-counting.
2. **Organisation identifiers should be a priority area for improvement.** The Standard should make clear that specific organisations should be identified rather than broad categories. DAC Channel Codes do provide some useful information in categorising organisations; we recommend incorporating these categories into the IATI Organisation Type codelist. Finally, developing a consistent methodology for organisation identifiers for public bodies would help to automate more of the process of importing data.
3. **Avoid disruptive and breaking changes to the Standard.** We recommend a more careful consideration of potential costs and benefits of upgrades to the standard – which can be disruptive and difficult to deal with. Changes that are not backward compatible should be avoided wherever possible. They may have significant negative effects on the structure of systems already using the data and it may become conceptually challenging to merge data from different versions into the same system. We also recommend road-testing or piloting changes to the Standard to make sure they work with a range of donors' data before formal agreement.
4. **Clarify the disbursement channel codelist.** The Disbursement Channel codelist should help to identify whether funds are “on budget” according to a couple of different definitions. However, it appears that one of the codes is being misinterpreted. In the statement “Money is disbursed directly to the implementing institution...” it seems highly likely (given the other values on that codelist) that “implementing institution” refers to government institutions. However, this should be clarified as it is currently being used inconsistently.
5. **Allow exchange rates and interest rates to be specified on transactions.** Exchange rates should be provided if the agreement stipulates a fixed rate that all parties will adhere to. Interest rates could also be provided in the case of loans. Both of these fields could remain voluntary, but they would be useful for debt management.
6. **Provide a place for publishers to state that their IATI data is their official data.** An addition to the standard stating whether donors were happy to be held accountable against their IATI data would make it much more palatable for end users, and reduce some of the process and accountability issues around automatic import.

3.4.4 Infrastructure

1. **Improve the IATI Datastore.** The IATI Datastore provides a good back-end for accessing original XML data, but could benefit from several improvements. Improvements to documentation and the user interface would make it easier for users to obtain extracts of the data. It should also provide automatic conversion to a requested version of the IATI Standard so that each system does not have to implement conversion manually each time. There should be an explicit commitment to converting data to the latest version of the Standard whenever an upgrade takes place. When organisation identifiers change, the Datastore should retain an up to date mapping

between old and new identifiers and return all relevant data, as users will not necessarily know that the organisation identifier has changed. Clarity on support and maintenance that will be provided for the IATI Datastore going forward (in the style of a Service-level agreement) would also help users to make informed decisions about whether to use this platform and the extent to which they can rely on it.

2. **Improve D-Portal.** There is a clear need for potential users of this data to take a look at the sort of information contained in the data they are considering to using. D-Portal is the obvious candidate for pointing people towards, but there are a few areas where improvements would help. Support for handling hierarchies of activities would improve the way that organisations like DFID's data appears on the site. On the project view, showing more of the data included alongside a particular activity (for example, locations) would be helpful. It would be helpful to provide an overview or summary of data on individual project pages – for example, total disbursements and commitments per year, rather than having to look through the full list of transactions. It should also be possible to see the data in USD on the project page (this is only listed on the page listing all projects). It is also notable that D-Portal is not able to present a figure which aggregates the contributions of multiple reporters in a single recipient country, despite this being a very common request. Finally, the user interface could be improved by improving the way information in multiple languages is displayed (for example, look at Canada's projects).

4. Further work required

Here we include a brief summary of further tasks to take this work forward. These suggestions focus on Bangladesh, though could perhaps be a useful template for undertaking more advanced work on using IATI data in other contexts. There are two broad themes of work: firstly, getting more and better data into the system, and secondly using that data for decision-making.

4.1 Getting more data into the system

1. **Simplification of the user interface and incorporation of user feedback.** Once donors have begun to use the module, there will be a need for a round of further development to reduce the complexity of the user interface and to optimise some of the workflows.
2. **Training and on-boarding of more donors.** Moving donors from manual data collection to IATI import should represent good value for money and provide some significant cost savings relatively quickly, as donor staff can focus on other activities, while the quality of their data is likely to significantly improve. The government can also spend less time chasing donors to provide input to the AIMS, and focus on those donors that are difficult to obtain data from. This component will require support to donors to improve the data they are publishing.
3. **Capture other interesting fields such as results data.** Data on results and conditions of projects cannot currently be captured in the AIMS. In the context of using the data for improved decision-making, results could be particularly interesting to incorporate. Conditions data may also be useful for improving oversight of project execution and helping the government to track donor conditionality more effectively.

4.2 Using data for decision-making

Once the AIMS contains good quality data from a critical mass of donors, it will become possible to begin using the data with a view to improving the way resources are allocated and used.

1. **Capacity building with line ministries and donors to use the data.** Donors and line ministries could be interesting targets for this work. Data collection and building systems is the hard part; using that data to make better decisions is where the real added value will come from. This will also help to test some of the initial assumptions and goals underpinning IATI. This component should include enhancements to the user interface.
2. **Integrate with other ERD systems.** Improving the way that this data flows within ERD – particularly through to budget systems – will reduce further still burden on donors and the government from data capture, and help to strengthen each of the systems.
3. **Consider incorporating NGO data.** Beginning to incorporate some NGO data may provide some useful insights on projects, for example by capturing sub-national locations that are reported in NGO activities but not in their funders' activities.
4. **Promote the work internationally.** This work provides a good example in the context of the 2030 Agenda for Sustainable Development and the Data Revolution. Other work could also support outreach to other countries to support their take-up of this module or parts of the methodology.