Carbon footprint of UNDP administered Global Fund HIV/AIDS and Tuberculosis grants in Montenegro and Tajikistan

Project Summary

ARUP

September 2013

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Contents

Glossary of terms

ART	Antiretroviral treatment
BSL3	Bio safety laboratory level 3
CenSA	Centre for Sustainability Accounting
CO	Country Office
CO_2e	CO_2 equivalent (i.e. all greenhouse gases are adjusted to the quantity of CO_2 with the same global warming potential)
EE-IO	Environmentally Extended Input-Output (emission factors)
HR	Human Resources
I/O	Input / Output (factors)
IDU	Injecting drug users
LCA	Life Cycle Assessment
LSC	Living Support for Clients
MAC	Marginal Abatement Cost
NAC	National AIDS Centre
NGO	Non-Governmental Organisation
PLWHA	People living with HIV/AIDS
PR	Principal Recipient
PIU	Project Implementation Unit
PSM	Procurement and supply management
SW	Sex workers
SAP	Standard Activity Profile
SDA	Service delivery area
SR	Sub-recipient
GFATM	The Global Fund to fight AIDS, Tuberculosis and Malaria
UNDP	United Nations Development Programme
VCT	Voluntary testing and counselling
WRI	World Resources Institute

Foreword

Climate change is now recognised as a major global challenge and one which if left unchecked, may threaten not just the environment around us but humanity's very own existence.

Whilst we are already experiencing its early impacts and struggling to cope; the science is pointing towards the need for radical change, and new thinking for the way we create energy, organise our production systems, and consume and deploy resources. Indeed, this will be essential if we are to sustain and develop our society and secure the health and wellbeing of future generations.

All aspects of societal activity must be looked at, and that includes those directed towards the prevention of life threatening diseases and the provision of emergency medical assistance.

It must start with understanding the emission levels associated with one's own activities. By using recognised protocols for the measurement and assessment of greenhouse gas emissions, a first 'carbon footprint' can be generated. This can then become the basis for managing future actions. By analysing findings and developing a more detailed understanding of the whole life cycle of products and services (including consumption and utilisation patterns), emission hotspots can be identified and prioritised. Taking action with targeted interventions to the most appropriate area can then lead to emission reduction.

It is perhaps surprising that the sector dealing with health care as its primary mandate has been slow in the start-up of its efforts to reduce its carbon emissions. It is unfortunate that the priority of immediate treatment of patients is too often and unnecessarily used as excuse to justify inadequate action. Unintended consequences can follow, including negligence towards the creation of further avoidable disease.

Herein lies a great opportunity. Our sector has real potential to effect change. The findings from a recent study by WHO Europe show that the health sector in Europe and Central Asia contribute to more than 4% of the overall greenhouse gas emissions; and that at least 25% of such emissions can be easily avoided (in the short term) whilst at the same time achieving health programme objectives.

Following in the footsteps of the British NHS Sustainable Development Unit, one of the pioneers in doing national health sector 'carbon footprinting', we initialized the study reported here by Arup to provide the first systematic evidence for the pattern of greenhouse gas emissions caused by global health initiatives.

Since UNDP is the single largest Principal Recipient of Global Fund grants in the world, we see this work as contributing to our direct responsibility of lowering emissions in our own operations as implementers of global health initiatives. In addition, we hope to raise the interest of other stakeholders – implementers, funders and policy makers – in this US $30 billion annual market of global health aid which has substantial influence on many national health systems around the world.

This report is the result of a truly multidisciplinary undertaking. There is much to learn from each other, and from across professionals in the environmental and health disciplines.

While applying standards of greenhouse gas accounting, this project programme offers some ground-breaking methodological work to measure emissions in the specific context of a global health initiative using a budget/expenditure and a service utilization approach.

The full technical report provides a detailed methodological description together with a narrative of the carbon footprint results and study findings of the UNDP Global Fund health initiatives in Montenegro and Tajikistan. This is further supported with a marginal abatement cost benefit study. These first activities get the agenda going and further action will now follow.

My sincere thanks go to the UNDP country office teams in Montenegro and Tajikistan, to colleagues of our Global Fund Partnership Team and to Arup as our consulting partner.

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Introduction

In early 2013 the world quietly passed the somewhat symbolic mark of atmospheric CO_2 rising above 400 parts per million. This is the first time our planet has been in this position for several hundred millennia and certainly before humans existed. This somewhat abstract threshold is important because it marks yet another point in the continued upward rise of atmospheric greenhouse gases, a situation which if left unchecked will lead to significant climate change implications. The issue is more complex still because it is not just about reduction targets, but more critically the reduction trajectory we take to get there. Limiting total emissions within a discrete budget will become an increasingly pressing issue with time. The International Energy Agency has recently quoted that "*to keep open a realistic chance of meeting the 2°C target, intensive action is required before 2020*".

Within this growing imperative the global health sector is increasingly being challenged to understand, quantify, and manage the greenhouse gas footprint of its operations. It follows that global health initiatives such as those financed by The Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM) and implemented by numerous principal recipient (PR) organisations around the world are taking note. The United Nations Development Programme (UNDP) is the largest GFATM PR globally and can perhaps more than any act as a catalyst for change given the organisations mandate and global influence.

Programme operational activities are far reaching and cover prevention, treatment and management functions. Greenhouse gas emissions can be attributed directly through fuel and energy use in facilities and vehicles (see Figure 1); but this must also be augmented with upstream and downstream activities such as the use of health services or the procurement of goods and services such as medical equipment, pharmaceuticals and other medical commodities.

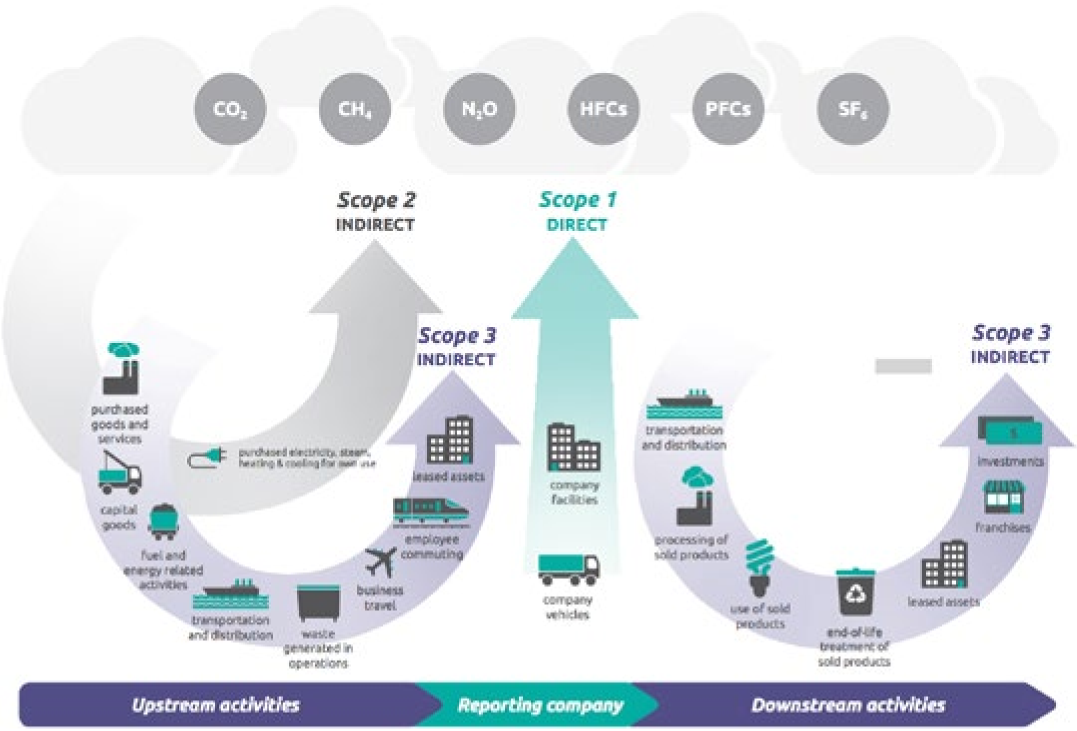


Figure 1. Scoping of emissions sources (from WRI Corporate Value Chain (Scope 3) Accounting and Reporting Standard)

Study objectives

The objectives of this project have been directed towards developing an understanding of the carbon footprint of a range of UNDP implemented GFATM grants, and to gain an insight into how the UNDP and other stakeholders might begin to manage scope 1, 2 and 3 emissions on an on-going basis. As such the focus has been on HIV/AIDS and Tuberculosis (TB) grants in Montenegro and Tajikistan. As illustrated in Figure 2 with the presentation of grant budget information for a typical HIV/AIDS grant in Tajikistan, the scope of activities within this remit are both diverse and complex.

It is on this basis that the project has assessed the greenhouse gas emissions of all goods procured and services commissioned to deliver the studied HIV/AIDS and TB grant programmes. This has been looked at together with climate change impacts arising from direct energy consumption and travel.

A series of operational aims were focused on:

- To produce a measure of the total carbon footprint for a set of UNDP/Global Fund grants in two countries. The footprint emissions outputs were to include:
    - Scope 1, 2 and 3 emissions (by the GHG Protocol definitions);
    - Emissions by source: energy, travel and procurement (supply-chain) emissions;
    - Emissions by country of UNDP project operation;
    - Breakdown of key hotspots of these main outputs listed into significant sub-areas.
- Calculation of the relative contributions of different types of goods, services and activities to this footprint; and
- Identification of the relative magnitudes of opportunity to reduce the carbon footprint through initiatives and strategies relating to specific components of the footprint.

But strategically it was also important that the study:

- Raised awareness and understanding of the carbon footprint of this type of programme; and
- Contributed understanding to the development of a broader strategy for reducing the carbon footprint of global health programmes within UNDP.

The study is believed to be the first of its type carried out for a global health initiative.

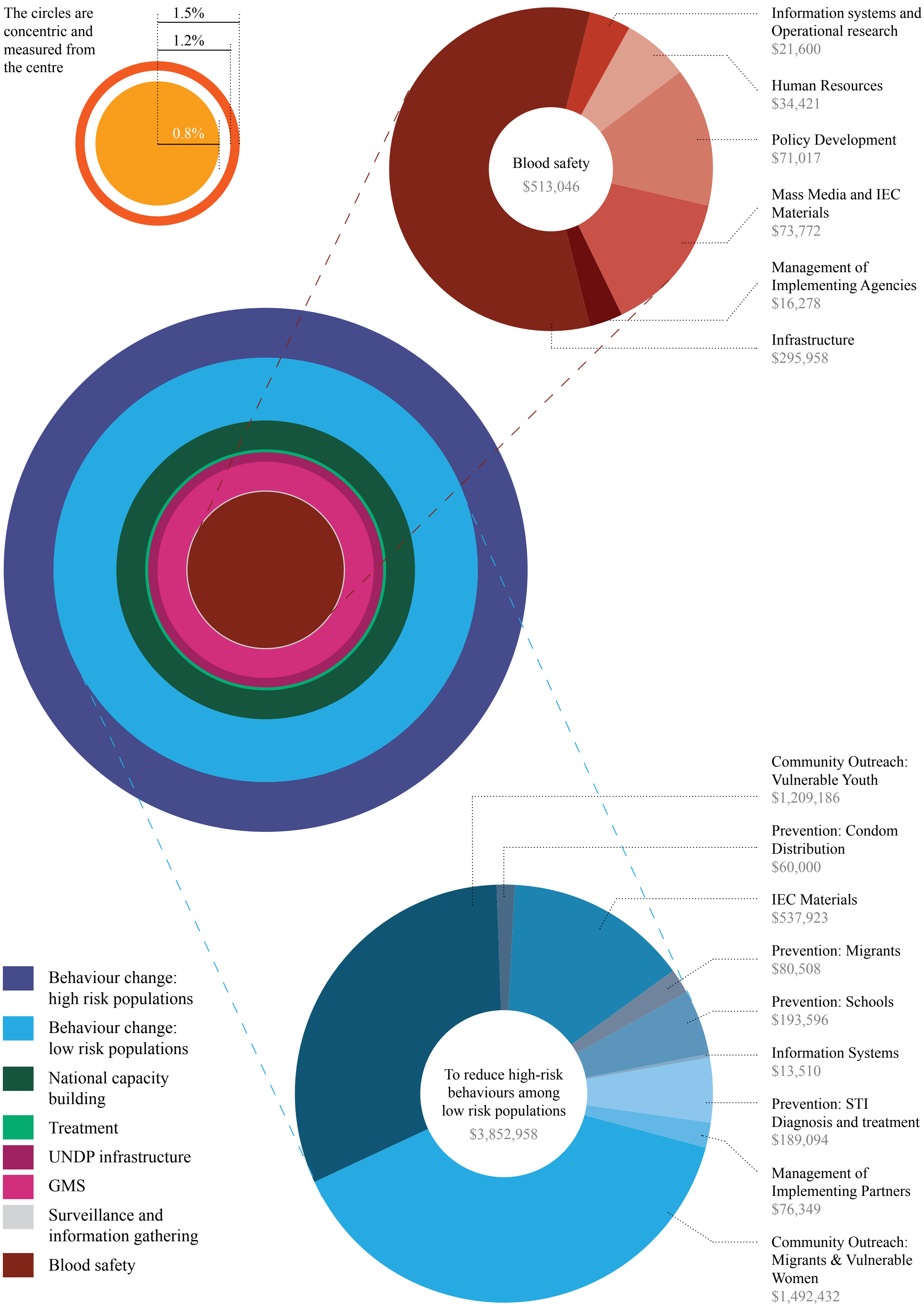


Figure 2. Budget illustration of example Tajikistan GFATM HIV/AIDS grant (round 8 phase 2) illustrating service delivery activities undertaken by the programme

Project approach

This study took a 'top-down' approach to carbon footprint analysis using a cost/budget and carbon intensity methodology. The study focused on seven separate GFATM grants within the two countries across the HIV/AIDS and TB programmes in both.

In simple terms the grant's monetary budget was used along with a set of environmentally extended input-output (EE-IO) climate change emissions factors specific to the countries studied. These factors give average emissions per unit of cost and are identified to one of 57 industrial sectors. The generalised approach applied can be explained as follows:

1. Determine budget allocation within a set of categories:

- building energy consumption
- direct use of vehicles
- business travel
- transportation and storage of goods
- procurement of goods and services

2. Estimate energy consumption, and fuel consumption, based on the budget allocation

3. Identify or develop carbon intensities, either:

- based on direct consumption estimates (i.e. kgCO_2e/kWh or per litre of fuel); or
- based on budgeted expenditure (kgCO_2e/$)

4. Multiply consumption by carbon intensity to calculate emissions in kgCO_2e for each sector and combine to determine the overall total carbon footprint.

For procurement activities, emissions were determined by mapping a breakdown of planned procurement budgets to EE-IO carbon emissions factors to derive overall embodied supply-chain emissions.

The developed model architecture is illustrated in Figure 3. Within this the sub-models produced carbon intensities (in kgCO_2e/$) for a range of different goods and services. Inputs to the sub-models were based on dialogue and data from the project implementation units in both countries. The activity analysis model then attributed activity spend to one or more good or activity, and used the sub-model outputs to calculate the carbon footprint. The model output sheet collated calculation results and could be used to present findings.

The development of the footprint model and gathering of inventories required detailed cooperation between the Arup analysis team and UNDP including:

- UNDP Country Office (CO) which provided central support to the delivery of UNDP projects;
- Bratislava, Slovakia – the UNDP Regional Office for 25 countries in Eastern Europe and Central Asia;
- Copenhagen, Denmark – central procurement support office the Procurement Support Office for the UNDP's GFATM operations;
- New York, USA – the location of the UNDP head office/headquarters;
- Geneva, Switzerland – location of the UNDP's Global Fund Partnership Team.

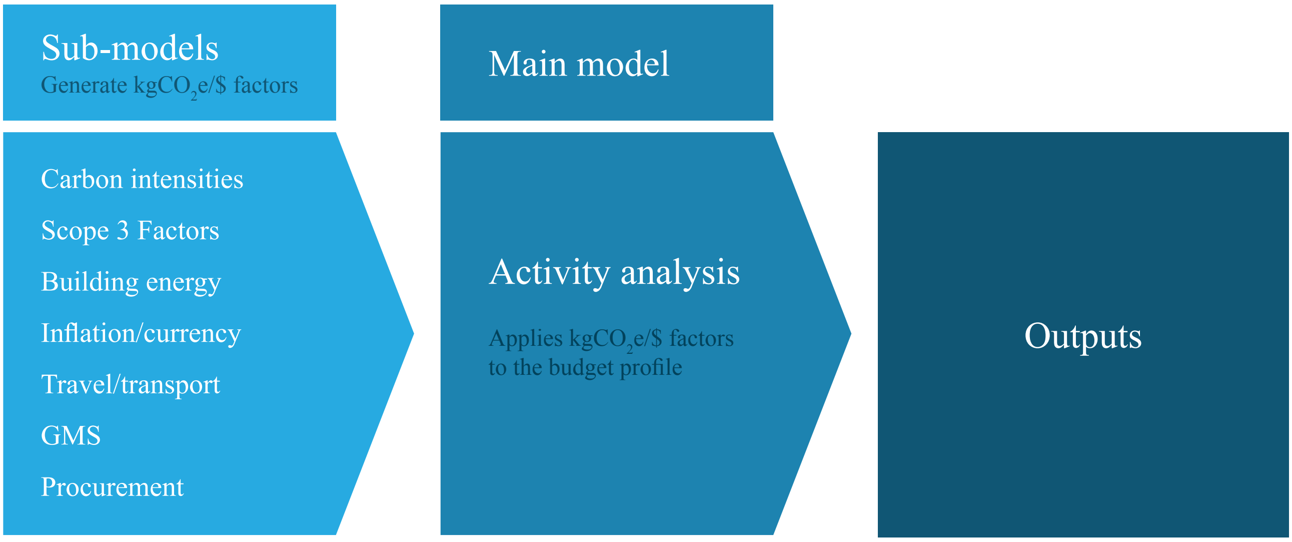


Figure 3. Overview of footprint model structure illustrating a number of the sub-models that were developed

What is EE-IO?

Environmentally extended input-output (EE-IO) analysis is based on an 'input-output' method that tracks all financial transactions between industrial sectors and consumers within an economy. By adding environmental information, such as greenhouse gas emissions, to each sector it becomes possible to assign an environmental burden (a "footprint") to these financial transactions. Similar to following the flow of money, or costs, from production to consumption, an environmentally extended input-output model allows following the flow of environmental footprints along supply and production chains. As each production step adds an environmental burden, the result is a life-cycle inventory of impacts of production and consumption, e.g. carbon, water or ecological footprints of companies, organisations, sectors, individuals, regions or countries.

The IO derived dataset applied in this project is based on a multi-regional global carbon model, covering 94 individual countries and 98% of GDP, producing unique carbon intensity factors for 57 economic sectors in each country.
It is therefore we believe the most sophisticated consumption-based carbon dataset commercially available. This dataset was accessed through an Arup and Centre for Sustainability Accounting (CenSA) partnership.

Findings & observations

This first exercise to determine and understand the greenhouse gas emissions associated with UNDP's GFATM grants has created a range of different data and observations. A summary overview of selected results and key studies is now presented.
This includes some of the basic carbon footprint findings at grant level, as well as an understanding of the impact of service utilisation activity. Operational implications are also looked at and how results might be used to inform service delivery activities. Further, a perspective on cost and carbon reduction potential is given with the presentation of a marginal abatement cost analysis.

Service utilisation: Scope 3 downstream emissions

The carbon footprint models developed excluded certain types of carbon emissions which, while not strictly produced as part of the GFATM grant programme, could still be associated to the activities of UNDP and its recipient and sub-recipient organisations. These emissions sources were deemed to comprise the travel of clients to service delivery outlets (i.e. to receive treatment), together with the operation of the service delivery outlets themselves (i.e. the energy required to run the facilities). The project looked at these activities in a bespoke carbon model that focused on three example interventions:

1. Voluntary testing and counselling
2. Antiretroviral treatment (ART)
3. Follow up monitoring of HIV-infected patients not eligible for ART

Models for transport (allowing for modal split) together with service outlet space (based on two facility types) were developed. This represented a simplified approach but one which was viewed fit for the purpose of generating a first understanding of the significance of the topic.

Findings were calculated based on a reference year (2012) but then extended pro-rata over the full grant period of three years. This provided a carbon estimate of 4,764 tCO_2e with a split of 4,621 tCO_2e to patient travel and 143 tCO_2e to space utilisation.

In outcome the results correspond to approximately 20% additional carbon emission to the calculated grant footprint. This is of further significance given that only three interventions were studied and the contribution would be higher still if emissions from all service utilisation interventions were accounted for.

The magnitude of this finding suggests that the spatial aspects of service delivery warrant further investigation. For example, with patient transport reflecting such a large component of grant carbon footprint, it may be useful to examine whether a more decentralised or integrated delivery model could offer a net carbon saving.

Grant carbon footprinting results

In all grants studied the majority of carbon footprint emissions arise from the procurement of the goods and services necessary to deliver the health programmes. These can be described as scope 2 and 3 emission categories. The impact of emissions arising in these areas can be attributed to the quantities (i.e. large economic outlay) of medical and other supplies procured. This is in contrast to the relatively small emission levels observed from direct organisational activities of the UNDP country offices.

In this regard the results of the footprinting process provide an indication of the size of the carbon footprint for different types of grants in terms of scale, location and, to some extent, emphasis. This last item relates to the type of project which is being delivered which is in turn, a property of the location/region and the nature of the service it requires.

Selected results can be viewed in the following Tables and Graphs.

Tajikistan footprint

In Tajikistan the emphasis is on bringing the health infrastructure in the country up to an appropriate level, along with providing direct testing and treatment to clients. It is interesting to note the large contribution of procurement of laboratory and medical equipment. Figures 4, 5 and 6 provide perspective on these aspects and it can be seen in outcome they create a relatively high carbon intensity for the Tajikistan grants (Table 1 and 2).

Montenegro footprint

The impact of transport and travel in Montenegro is less, as would be expected given the size of the country and its existing transport infrastructure. In Montenegro the emphasis is to engagement, education and awareness raising, and governance, and less to treatment and infrastructure. Developing, printing and delivery of information to populations at risk is a key component of these grants. The results of the carbon footprint exercises appear to confirm what would be expected – that these lower impact activities result in an overall lower carbon intensity for the grant (Table 3 and Figure 7).

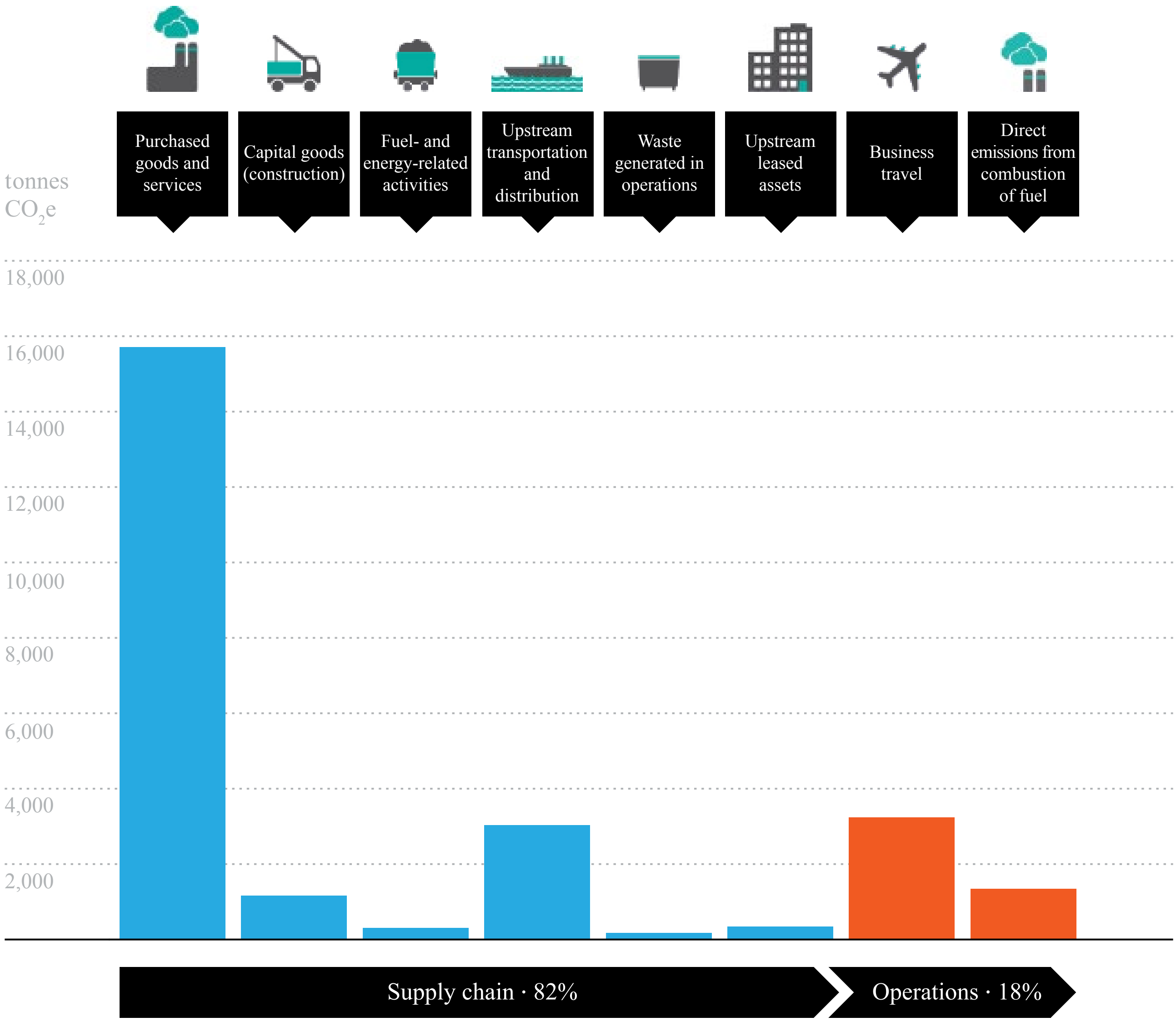


Figure 4. The carbon footprint of HIV/AIDS grant R8P2 in Tajikistan presented in GHG protocol scopes across the value chain

Grant	Original budget	Adjusted budget[1]	Carbon footprint (tonnes CO_2e)	GHG Scope			Adjusted carbon intensity[2] ($kgCO_2e$/$)
				1	2	3	
TB Round 8 Phase 2	$ 8,926,820	$ 8,321,901	18,148	<1%	<1%	99%	2.181
TB Round 6 Phase 2 and Round 8 Phase 1	$ 19,828,310	$ 18,536,023	37,595	<1%	<1%	99%	2.028
TB Round 6 Phase 1	$ 6,538,450	$ 5,986,114	11,746	<1%	<1%	99%	1.962

Table 1. Summary carbon footprint results for Tajikistan TB grants

[1] The adjusted budget reflects the original budget deflated to 2004 prices and excluding HR costs
[2] The adjusted carbon intensity is based on the adjusted budget

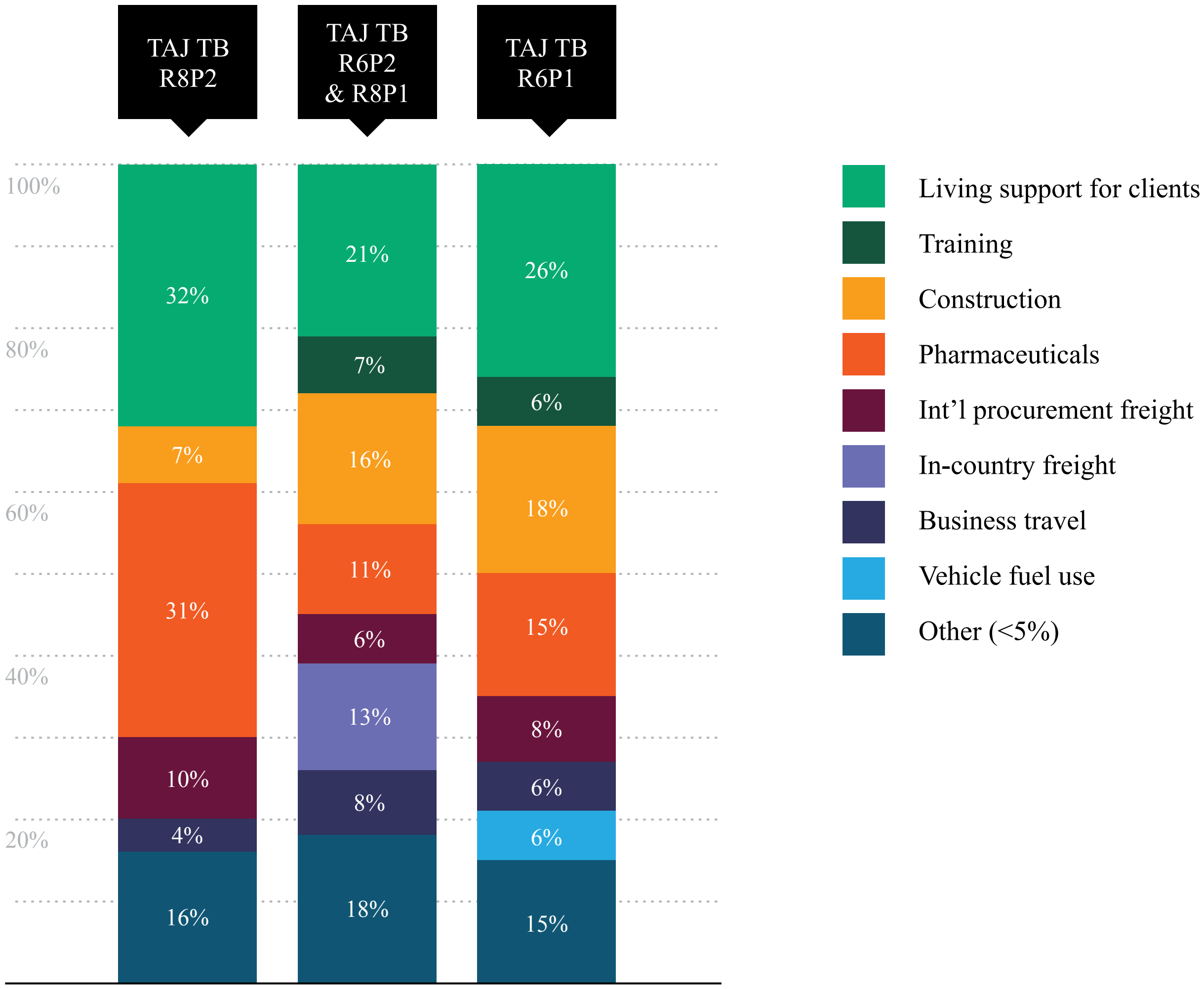


Figure 5. The main emission sources from Tajikistan TB grants

Grant	Original budget	Adjusted budget[1]	Carbon footprint (tonnes CO_2e)	GHG Scope			Adjusted carbon intensity[2] ($kgCO_2e$/$)
				1	2	3	
HIV/AIDS Round 8 Phase 2	$ 15,368,588	$ 12,399,224	25,214	2%	<1%	97%	2.034
HIV/AIDS Round 6 Phase 2 and Round 8 Phase 1	$ 18,386,820	$ 15,255,319	33,933	8%	<1%	91%	2.224
HIV/AIDS Round 6 Phase 1	$ 7,909,462	$ 7,409,514	15,779	<1%	<1%	99%	2.130

Table 2. Summary carbon footprint results for Tajikistan HIV/AIDS grants

[1] The adjusted budget reflects the original budget deflated to 2004 prices and excluding HR costs
[2] The adjusted carbon intensity is based on the adjusted budget

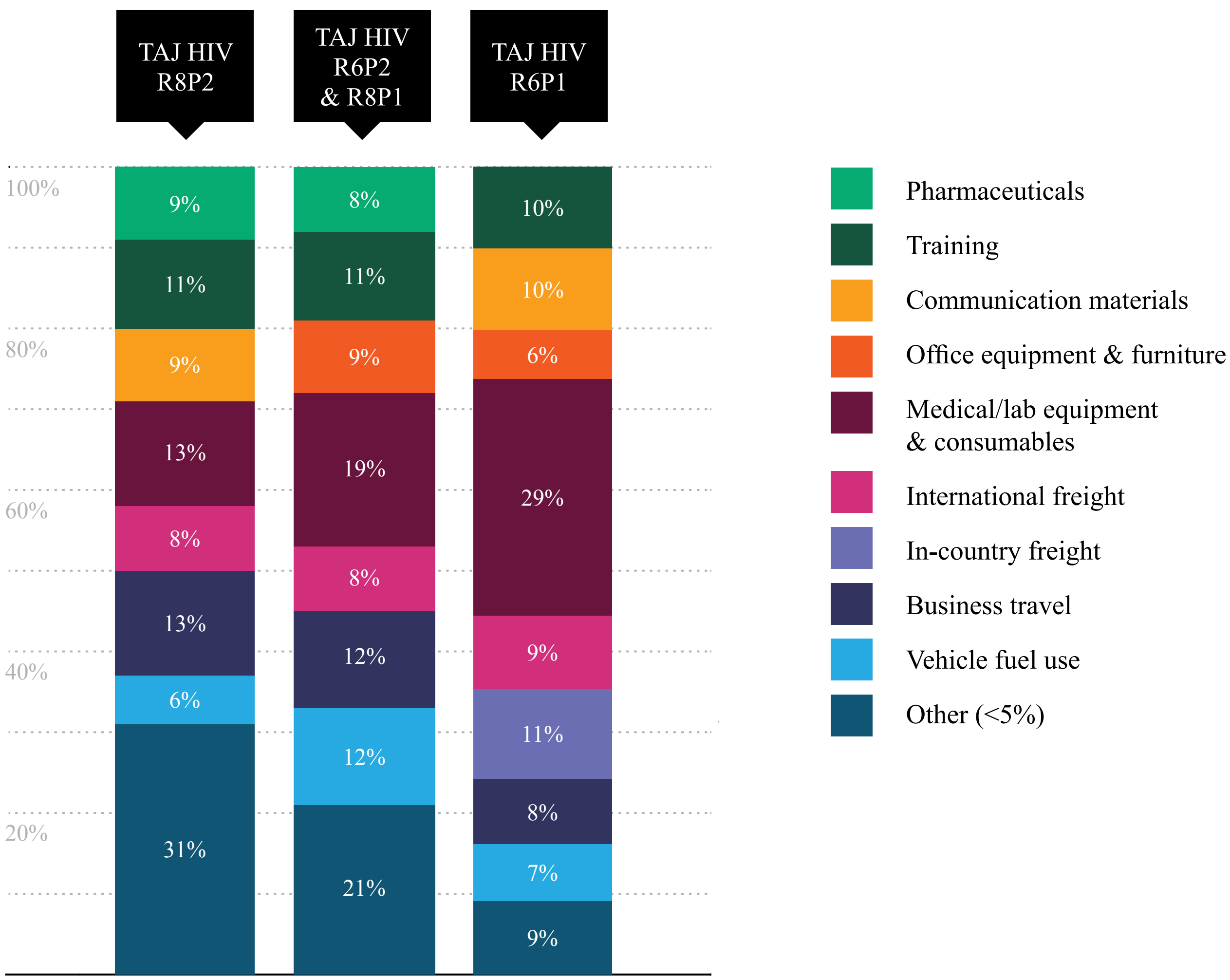


Figure 6. The main emission sources from Tajikistan HIV/AIDS grants

Grant	Original budget	Adjusted budget[1]	Carbon footprint (tonnes CO_2e)	GHG Scope 1	GHG Scope 2	GHG Scope 3	Adjusted carbon intensity[2] ($kgCO_2e$/$)
HIV/AIDS Round 9 Phase 2	$ 1,840,491	$ 887,172	823	0%	8%	92%	0.928
HIV/AIDS Round 9 Phase 1	$ 2,672,892	$ 1,903,658	1,725	0%	1%	99%	0.906
HIV/AIDS Round 5 Phase 1 and Round 5 Phase 2	$ 3,150,568	$ 2,171,753	2,401	0%	7%	93%	1.105
TB Round 6 Phase 2	$ 1,478,534	$ 1,136,074	1,249	0%	4%	96%	1.099

Table 3. Summary carbon footprint results for Montenegro HIV/AIDS grants and TB grants

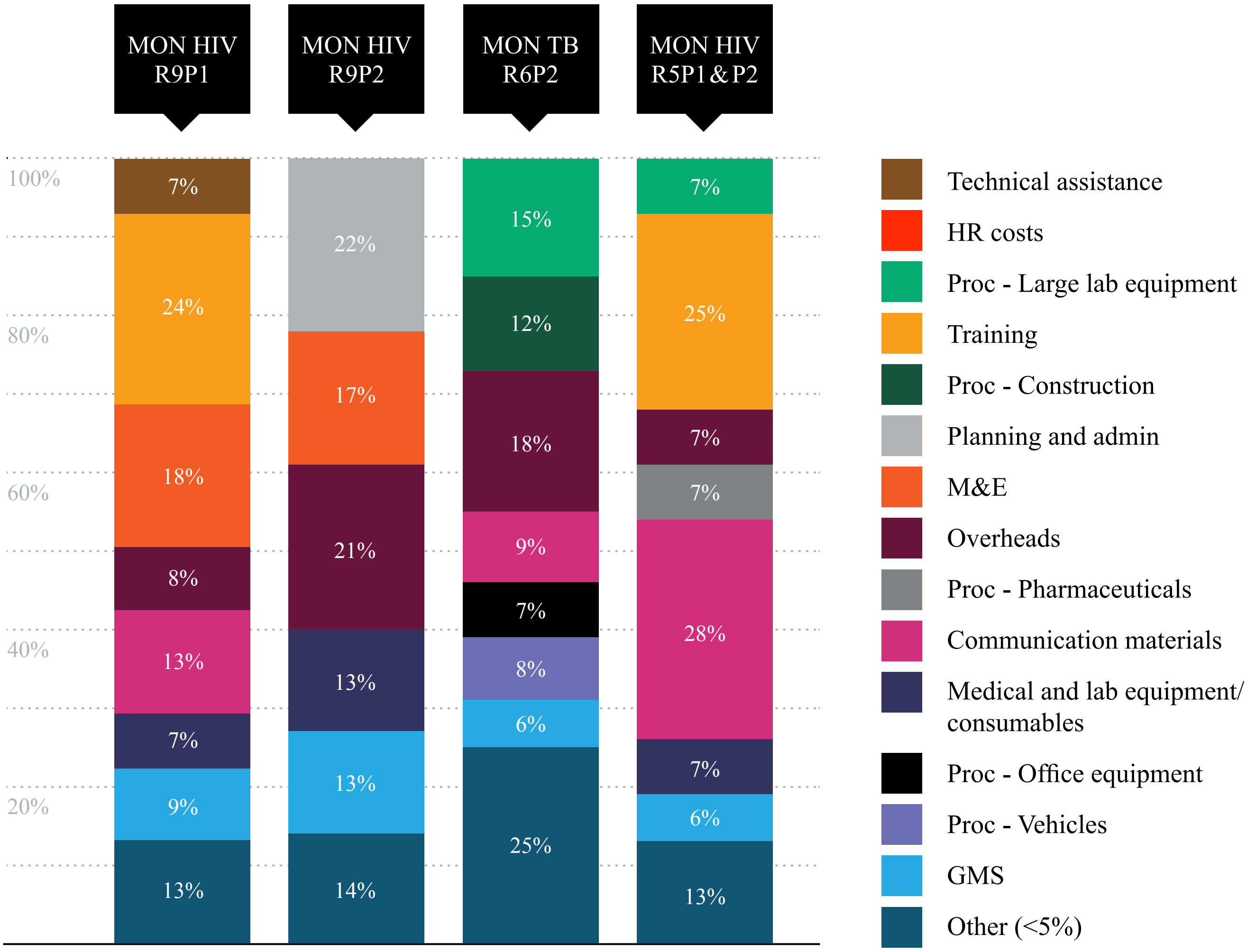


Figure 7. The main emission sources from Montenegro HIV/AIDS and TB grants.

Service Delivery Areas: Creating a strategic planning and operational response to carbon

GFATM grants will typically be structured into a hierarchy of service delivery areas (SDA), activities and sub-activities; with defined areas commonly contributing to specific programme objectives. This framework provides a structure from which grant budget planning and then operational implementation can be coordinated and monitored. An example of this was provided earlier in Figure 2. This makes examining carbon footprint within a SDA context, a potentially useful area for action. In due course such an approach could be an enabler to look at climate change mitigation within the funding requests put to the Global Fund.

Illustrations of carbon emission results at SDA activity and sub-activity level are presented in Figure 8. Findings are for the Tajikistan HIV/AIDs round 8 phase 2 programme (budget data for this can be seen in Figure 2). Results provide an indication for how carbon emissions data can be reported.

In practice a calculation could be applied at planning and integrated with budget spread sheets to allow an immediate estimate of a grant's carbon footprint during its development and application. With progress this could form the basis of a means to monitor carbon and mitigation actions throughout the delivery of the grants themselves.

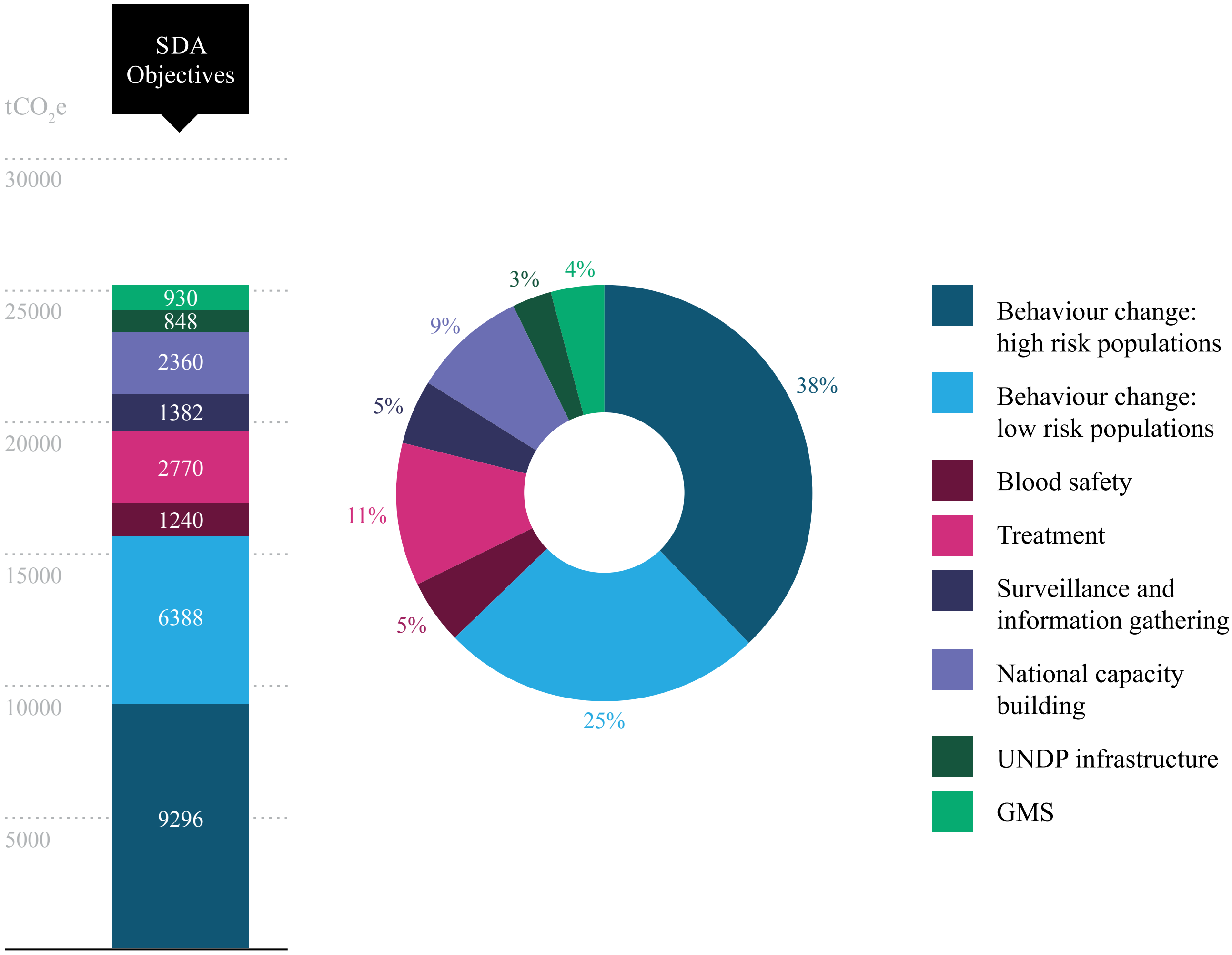


Figure 8. Carbon footprint of Tajikistan HIV/AIDS by SDA objective

This would be done by aligning the SDA budget carbon emission data with actual expenditure out turn. This would provide the basis for reporting the carbon intensity value per spend and then by recording against grant performance indicators, also the potential to monitor the carbon intensity per target. Operational monitoring with this approach would provide a means to drive carbon reduction opportunities. This would be a first step towards establishing a cross-grant and cross-country data set of carbon-emissions per unit of service output; an asset that would be of great value to health planners in UNDP and The Global Fund.

This thinking could be extended further with the standardization of these objectives per disease programme, together with SDA's and related indicators throughout a whole grant programme. This could deliver better benchmarking of costs per unit of service output, but also benchmarking of carbon emission per unit of service output. This might lead to benchmarking of grouped or similar countries (in terms of macro-economic and Human Development Report etc. indicators), as well as similar epidemic settings. In this way carbon /climate change could have the potential to be looked at along-side cost and other established indicators as a detailed health planning metric.

Transport of people and goods can be a major contribution to carbon footprint.

Cost/carbon benefit

The primary purpose of the GFATM grants are to effectively increase the scope and scale of services in countries lacking capacity to provide access to services regarded as essential for prevention, treatment, care and support. This means it is simply not an option in the short term to reduce the 'units' of service output. Indeed, it makes it a priority to extract as much service output as possible out of the allocated budget.

This context made it a priority for the project to understand if there were cost benefits to be realised from carbon mitigation actions and if these could be achieved based on reduced carbon intensity per unit of service output. Practically this strategy was viewed feasible if it could be delivered by considering the whole life cycle carbon performance of goods and services procured, together with efficiency improvements within the service delivery system itself.

The project explored these ideas through the use of a Marginal Abatement Cost (MAC) curve analysis. Results of the footprint study for both countries and a selected number of key areas were focused on. A workshop was held with the UNDP procurement team and respective country offices to identify those grant activities with greatest potential for action. Potential was viewed to exist in:

- Switching to lower carbon supply chains
- Local procurement (reduced transport)
- Deployment of equipment with greater efficiency
- Service utilisation gain for same resource deployment

In specific instances demand reduction was also viewed as offering some potential. Generically these areas could therefore be classified as falling in to one of two types of intervention. This enabled a simplified approach to be adopted in modelling:

1. **Efficiency improvement**
   The delivery targets of the grant are met, albeit with a reduction in the 'amount' of inputs and processes
2. **Carbon intensity reduction**
   The carbon intensity of a particular good or service can be reduced either in the short term through more targeted procurement, or in the longer term through more strategic initiatives

These two intervention strategies were applied to the focus hotspot areas within the grants. This was based on local understanding and an assumed scenario.

Within this context the purpose of the interventions analysis was to provide general insight to opportunity, and the cost benefits to be made in reducing the carbon footprint of grants. The outcome might therefore provide understanding of the areas that should form the first focus for action.

An example illustration of the method and outcome is presented in Table 4 and Figure 9. These results are for a Montenegro HIV/AIDS grant (Round 9 Phase 2).

Intervention scenario	Carbon saving (tCO_2e)	Capital expenditure ($)	Cost/saving per tonne of tCO_2e	Cumulative carbon saving (tCO_2e)
Procurement: communication materials (5% reduction in consumption coupled with 5% cost reduction)	2.02	-2310	-1141	2
Procurement: office equipment (5% reduction in purchasing)	0.56	-595	-1055	3
Training (2% delivery reduction)	0.40	-286	-721	3
Travel (5% reduction in-country travel)	2.69	-1719	-638	6
Procurement: condoms (2% reduction in consumption)	1.62	-879	-543	7
Planning and administration (5% reduction)	8.47	-3894	-460	16
Building energy (5% reduction in use)	6.80	-912	-134	23

Table 4. MAC modelling scenario for Montenegro HIV/AIDS grant (Round 9 Phase 2)

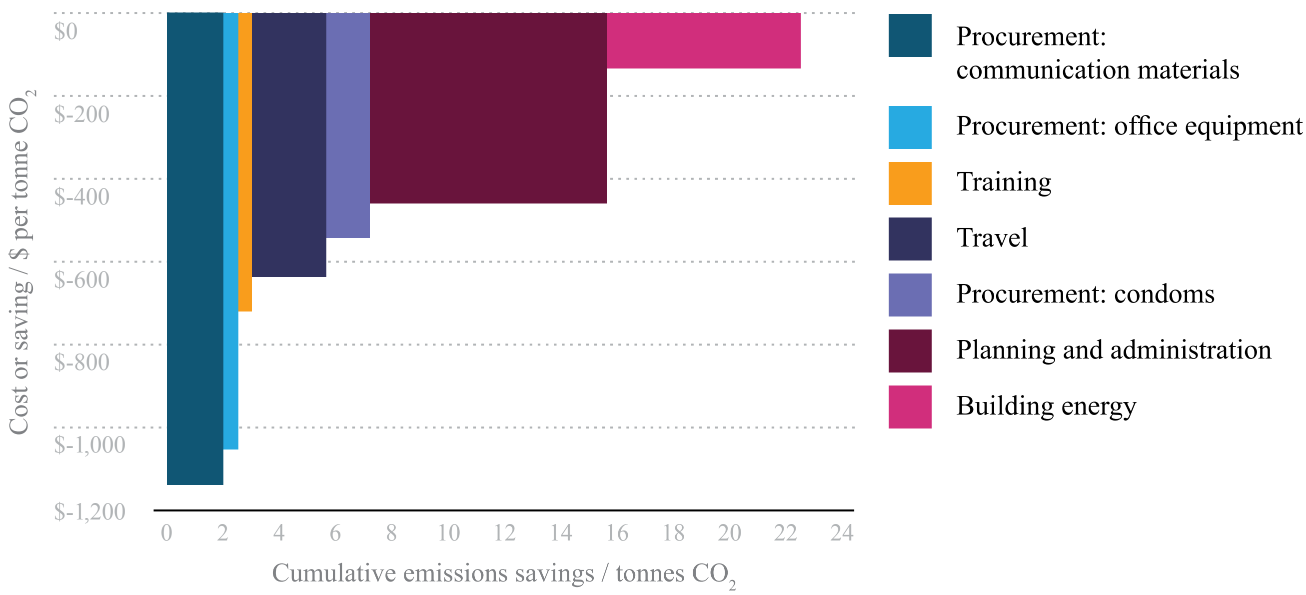


Figure 9. MAC graph for Montenegro HIV/AIDS grant (Round 9 Phase 2)

The models for this work were based on a set of challenging but realistic assumptions for changes to the way grants were delivered. As the example shows, only modest savings in carbon emission levels were found to be possible.

However, there are multiple levels of detail to this and further investigation is merited. It is interesting to note for example that some of the areas where the opportunity is greatest are areas where the local country offices exerts some control, namely around business travel and use of vehicle fuel for sub-recipients. This is evident in Figure 9.

That is not to say procurement is not important. Other grants for example had different budget profiles with large contributions of greenhouse gas emissions from construction activity and procurement of pharmaceuticals. Here there is potential but it will require a broader initiative across the UNDP to deliver emission reductions.

A range of strategies will be required in order to see improvement making full use of the influence that UNDP has in ensuring suppliers are working hard to minimise carbon emissions, together with joining up carbon objectives and action within the procurement process that the UNDP system operates.

Social cost of carbon

The integration of carbon emission monitoring as part of the health planning process is a new agenda to be taken account of. One of the challenges is to create relevance of the subject to normal working practice. To aid with this the study undertook a small exploratory calculation to link carbon emissions with the ‘social cost of carbon’.

The work of the Stern review popularized this concept and this was used as a basis for the calculation. The social cost of carbon is defined by the ultimate concentration of greenhouse gases in the atmosphere and keeping global temperature rises within defined limits. These are principles consistent with UNDP aspirations, and as such the social cost of carbon quoted by Stern of $25-30 per tonne CO_2e is a useful benchmark.

Using the Stern value means we can monetize for a UNDP programme an approximate for the cost reduction (or modification of carbon intensity) that will be necessary to adhere to the quoted 450-550ppm CO_2e atmospheric greenhouse gases concentration (which equates to an estimated global 2ºC temperature rise) that Stern calls for.

For example if we take the total 74,926 tonnes CO_2e emissions for the Tajikistan HIV/AIDS programmes and assume a $30 per tonne CO_2e value; this equates to a social cost of carbon of $2.2 million. The total HIV/AIDS programme budget in Tajikistan is approx. $35.1 million, with the social cost of carbon equating to some 6% of this total amount. In summary, $2.2 million of climate change damage is incurred with the $35.1 million spend.

BSL3 whole life carbon footprint

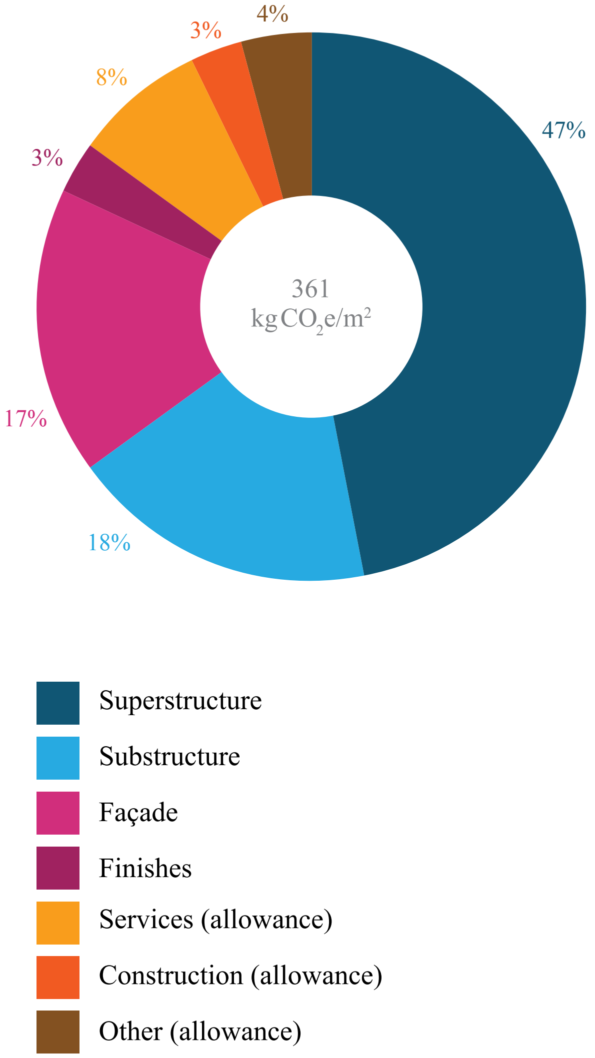
The construction of a bio safety laboratory level 3 (BSL3) was a major initiative for the Tajikistan UNDP GFATM programme.

Understanding the carbon/climate change impacts of this facility was important due to its prominence in the local programme, but also to create perspective towards understanding similar facilities being built more widely by UNDP.

This aspect of the study was undertaken using life cycle assessment (LCA) based on quantities information from project design and specification details. The study found the carbon footprint of the building materials and construction fabric was 360 tonnes or 421 $kgCO_2e/m^2$. This is slightly lower than the benchmark range we might expect for hospital buildings which are commonly more substantial (440-550 $kgCO_2e/m^2$), see Figure 10. By far the biggest contributor to the carbon impact of the facility was found to be its operational energy use, Figure 11.

The model created some first insights into the carbon footprint of BSL3 facilities and their design. GFATM grants are used for the construction of BSL3 facilities in many countries, as well as wider investment in country infrastructure. In this context it would be useful to create more information on the strategies which can be adopted during the design, construction, and maintenance of such facilities. For example no relevant benchmarks on carbon emissions for these buildings were found in developing the study. In this way practical actions to minimise (the not inconsiderable) carbon emissions from these and wider health facilities in both construction and operation might be realised.

Bio safety laboratory level 3 (BSL3) in Tajikistan



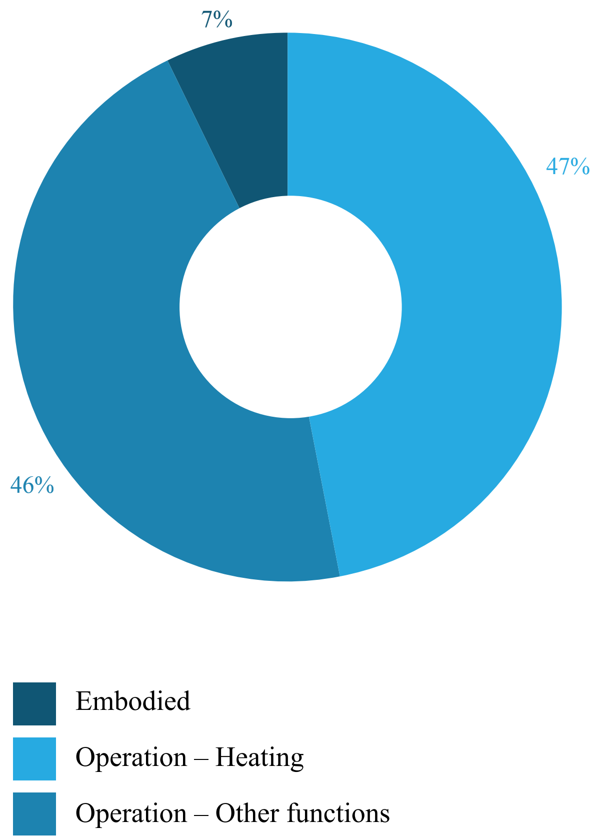
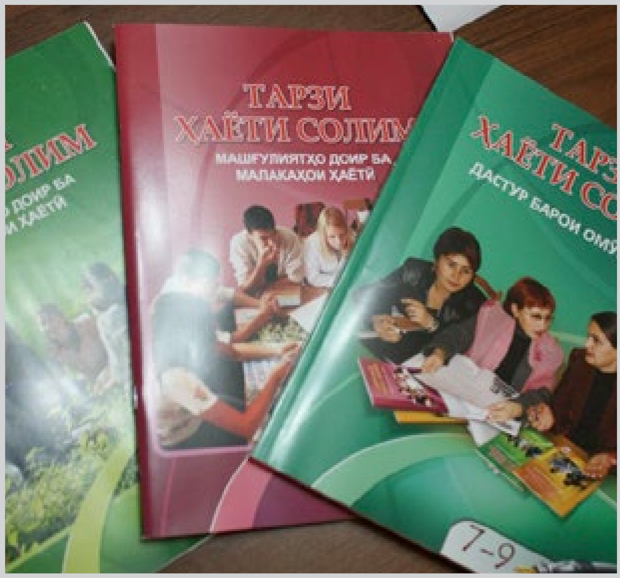


Figure 10. Embodied carbon of materials and building fabric of BSL3 facility

Figure 11. Whole life carbon footprint of BSL3 facility including embodied carbon of materials and operational emissions


POBIJEDI
PREDRASUDE
MISLI O DRUGIMA
STOP STIGMI!
Sestra
Brat
Ljubavnik
Kum
Drug


ТАРЗИ
ҲАЁТИ СОЛИМ
МАШҒУЛИЯТҲО ДОИР БА
МАЛАКАҲОИ ҲАЁТӢ
7-9

Concluding statement

The objective of this project was to develop a first understanding of the carbon footprint of a range of UNDP implemented GFATM HIV/AIDS and TB grants in Tajikistan and Montenegro. As a ground breaking study in the field it has been successful in creating a first understanding of greenhouse gas emissions sources from these global health initiatives and an indication of where UNDP and its stakeholders may focus their first mitigating actions. In summary the following key priorities can be identified for UNDP carbon reporting and mitigation interests in the administration of GFATM grants:

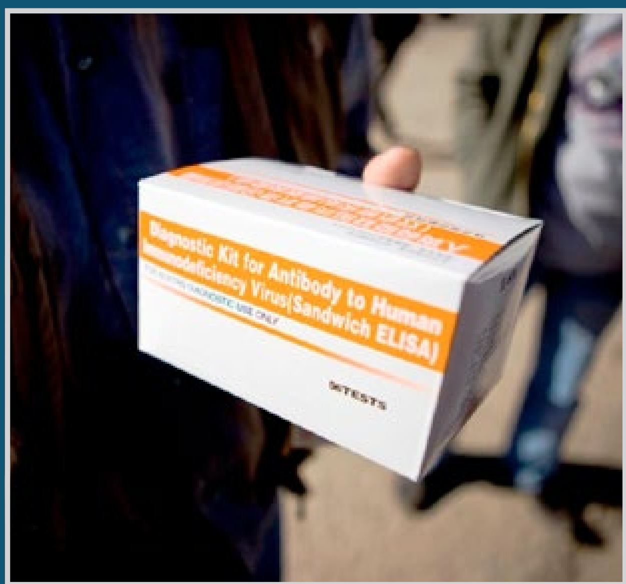
- Modest savings in carbon emissions could be rapidly achieved in operational activities particularly where the local country office exerts influence and/or control, namely around business travel, use of vehicle fuel for sub-recipients, vehicle fleet management, and building operation;
- Significant carbon can be associated with the supply chain and it is important to examine in more detail the approach taken to global procurement, and the carbon implications of this approach; dialogue with the supply base on these issues will be necessary;
- The indication is that service utilisation represents a considerable carbon liability. A further more detailed study to understand impact reduction options and what they mean to client groups, and improved service access through optimized service organization, could be usefully completed;
- Carry out a similar study in a different international region with generalised epidemics where the challenges for the UNDP, and the in-country infrastructure and service delivery, will be different to those already studied;
- Establish a broader evidence base on the cost benefit of carbon reduction including the potential for cost savings and articulating the wider social cost of carbon emissions. This should be conducted in close dialogue with the supply base to understand cost/carbon implications;
- Move to utilise more specific emission factors for headline procurement items and consider the impact of different pharmaceutical pricing strategies and their influence on grant carbon intensity;
- Consider how this type of analysis could be used to inform future grant programmes by being incorporated into planning and operational phases, and facilitated/driven through on-going data collection during delivery.

With refinement the calculation platform piloted in this study could be used for carbon footprint estimation in grant application processes. In due course the recording of carbon emissions and mitigation actions during grant delivery could also be monitored. Operational monitoring would provide a means to drive carbon reduction opportunities. With the right coding strategy (i.e. linking carbon emissions with grant performance indicators) carbon /climate change impact has the potential to be looked at along-side cost and other planning indicators as a detailed health planning metric.

The immediate challenge following this study will be for the UNDP to implement from the range of options available to it the right actions to begin to embed carbon reduction activities within its operations. It will be necessary to encourage contribution from a wide group of stakeholders to make this a success. Effective management of carbon emissions in individual grants will require active understanding and action throughout the organisation, and the grants it administers, and should be considered as early as possible in the development of future grant programmes.


WASH
BIOHAZARD


DISPOSABLE SYRINGE
STERILE


Diagnostic Kit for Antibody to Human
deficiency Virus(Sandwich ELISA)
96TESTS

ARUP

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