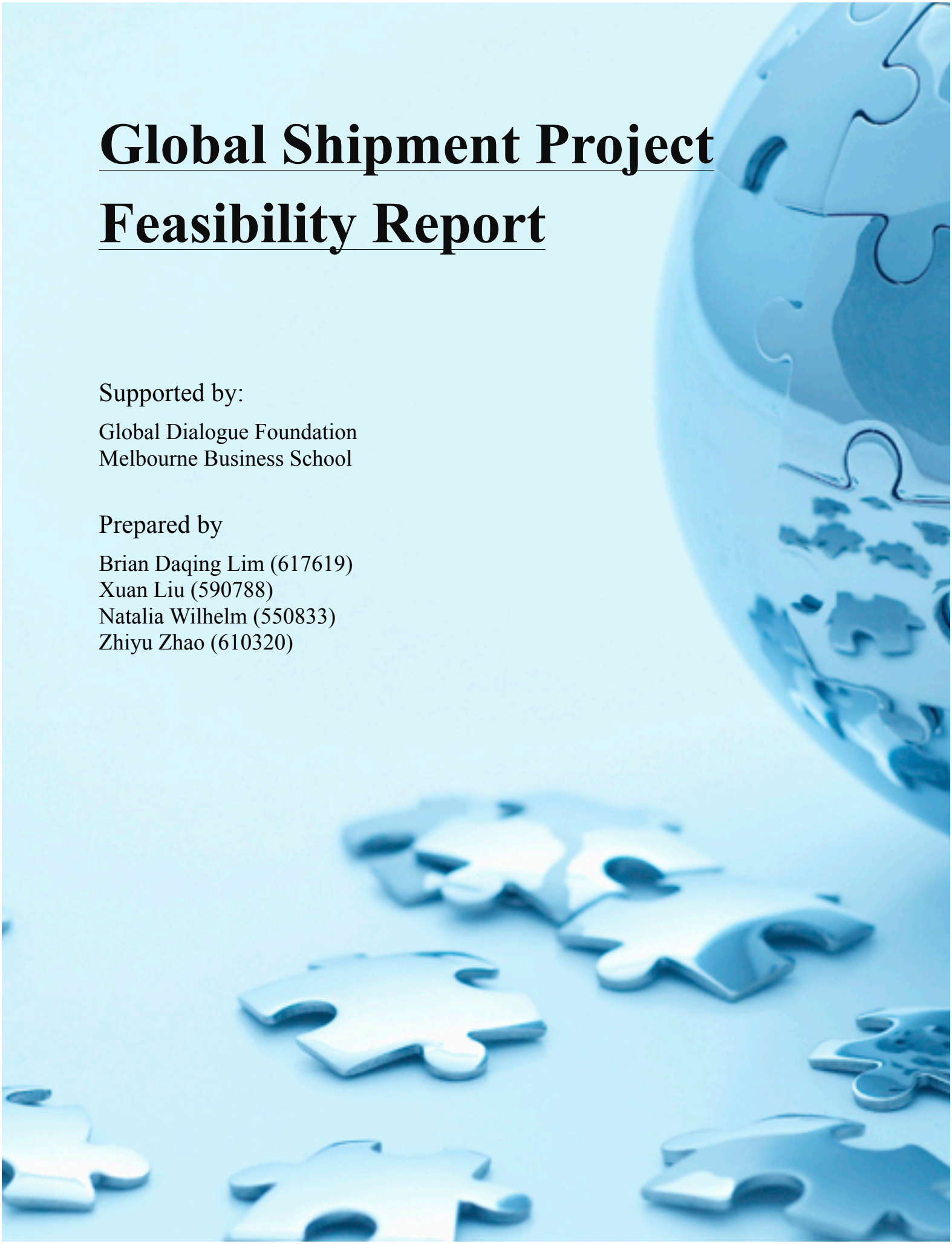
Global Shipment Project Feasibility Report



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Executive Summary

This feasibility study has a main purpose, which is to devise a strategy to move used hospital goods in a usable condition from developed to developing countries, particularly from Australia to India. In order to do so, the report is structured in two main parts; Project Description and Project Articulation. In addition, the purpose of the study is to establish a proof of concept that may be replicated globally in the future.

For the Project Description, the purpose, priority, scope, background, strategic context and related projects were identified. It is important to mention that the scope of the project is to produce a report which will determine the internal and external context of the project by using a SWOT analysis and identifying similar projects, identifying the process that best suits the project with the key activities and tasks, parties, costs and risks involved and recommend guidelines to make the implementation stage a success.

The background and strategic context will demonstrate the real need in India for medical goods and equipment and it will demonstrate the feasibility of implementing this project, given some similar initiatives. For the Project Articulation, the project governance, process, cost plan and risk analysis were identified. These elements use a full cost model as a scenario where GDF has complete control of the project and its costs.

The project governance proposes a coordination structure led by a board of directors, followed by a coordination group that act as an intermediary between the board and stakeholders and finally the stakeholders involved in the achievement of the project's goal. The project process describes each activity involved in it with some alternatives. The cost plan is a full cost analysis of the process. Finally, the risk analysis identifies the risks involved in the process and is divided into 4 areas (Australia, shipping, India and overall).

To conclude the Project Articulation, an analysis of alternatives and recommendations were given. The main purpose of the alternatives analysis is to provide GDF with some possible action plans in order to avoid the full cost process, decrease costs and reduce duplication of activities. Therefore, the alternatives are: GDF activities subsidized by partners, collaboration with Rotary International and collaboration with the Royal Australasian College of Surgeons (RACS).

The recommendations are articulated around the most suitable alternative for GDF at the moment which is to subsidize the project with the help of GDF's partners, and the next steps for GDF. This alternative may be subject to change as more information becomes available. Appendixes and references used to produce this report are also included.

Content

Part I. Project Description

I-1. Project Title

Feasibility study for moving used hospital goods in a usable condition from developed (Australia) to underdeveloped country (India), including logistics and financing options.

I-2. Project Purpose and objectives

The primary purpose of this project is to devise a strategy to move used hospital goods in a usable condition from developed to developing countries, particularly from Australia to India.

In order to achieve this, three special research objectives are recognized.

1. To develop the process of the project and identify potential parties involved in the delivery of recycled medical goods;
2. To identify potential costs and risks that may occur during the process;
3. To establish recommendations and potential partnerships to successfully implement the project

I-3. Priority

This is a high priority project for GDF given the high amount of underutilized goods/equipment disposed by hospitals in Victoria. Moreover, some hospitals, such as Cabrini and Western Health, have a sustainability department which is responsible for the disposal of equipment and its environmental impact. Finally, according to the partner Indian NGOs (the SAGE Foundation and Wockhardt Foundation), there is a high demand for medical equipment in rural areas of India. Priority is also given to this project by the GDF due to the current opportunity being closely linked with the values and deliverables of the organisation.

I-4. Scope including key deliverables

I-4-1. Constraints

Time was the main constraint in which this study has been carried out. The students had two weeks to produce a report which the host organization will present to the current and future stakeholders to promote and gain their support for the said cause. Therefore, the possibility to explore a broad range of alternatives was limited by the period of time.

I-4-2. In Scope

The following stages of the project are the main focus of the report:

- Determine the internal and external context of the project by using a SWOT analysis and identifying similar projects.
- Identify the process that best suits the project with the key activities and tasks, parties, costs and risks involved.
- Recommend guidelines to make the implementation stage a success.

I-4-3. Out of Scope

Given the time constraint, the following stages of the project will not be looked upon:

- Deliver database software
- Non-binding agreements with hospitals
- Coordination among parties

(However, it will be necessary for GDF to look into these aspects)

I-4-4. Assumptions

This feasibility study assumes that the stakeholders presented for the process management will remain interested in facilitating their help during the implementation stage. These stakeholders include:

- The Royal Australasian College of Surgeons
- Northern Health
- Southern Health
- Western Health
- Rotary Club Footscray Warehouse (DIK – Donations In Kind)

- Mainfreight
- SAGE Foundation, India
- Wockhardt Foundation, India
- Cabrini
- Percepta
- Federation of Indian Associations Victoria
- High Commission of India

This feasibility study assumes that the information given by the stakeholders is actualized and it can be used for estimating the cost of the process.

I-4-5. Deliverables

This feasibility study has a main deliverable, which is to produce a report which the host organization can present to the current and future stakeholders to promote and gain their support for the said cause, which includes implementation strategy; process formulation, cost and risk analysis and recommendations.

I-5. Background and Strategic Context

I-5-1. Medical Condition in India

According to the World Bank database (Appendix Ⅰ- A and Appendix Ⅰ- B), the total health expenditure in India during 2007 to 2011 was around 3.9% of its Gross Domestic Product. While the overall healthcare expenditure in India is comparable to most developing countries, the health expenditure per capita in India is low due to its large population and low per capita income; 47 US dollars in 2007 and 59 US dollars in 2011. This is extremely low compared to health expenditure per capita in most developed countries. For instance, by 2011, the health expenditure per capita in the United Kingdom and United States was 3609 and 8608 USD respectively. The situation of low health expenditure per capita in India is not expected to improve in the near future because of the rising healthcare costs and India's growing population. The Indian population in 2011 was 1,210,193,422 with decadal population growth rate (2001 to 2011) of 17.64%. (Rural Health Statistics in India, 2011)

Currently, almost 75% of healthcare services in India are provided by the private sector. Due to a lack of regulation, some private providers practice without minimum standards and the quality of

treatment varies from one to the other. According to the data summarized in Appendix Ⅰ- C, the average size of the private hospitals in India is 22 beds, which is low compared to other countries. (Healthcare Indicators n.d.) Furthermore, healthcare in rural areas is facing a grave challenge in India, "with 500,000 doctors, but a need for three million to adequately provide essential healthcare, the country is confronted with a major public health problem – and the potential human consequences are profound." (World Health Annual Report 2011/2012) This project will specifically focus on 4 areas in India at this point of time —Rajasthan, Uttar Pradesh, Maharashtra and Karnataka, given by the work done in those areas by a GDF partner, Wockhardt Foundation. Furthermore, according to the data, the rural population in these areas in comparison to urban, is high and does not vary much during the years, 76.6% in 2001 and 75.1% in 2011. (Appendix Ⅰ- D)

I-5-2. Medical Condition in Australia

In Australia, the federal government spends around 9% of Gross Domestic Product from 2007 to 2011 on total health expenditure - per capita of 5939 in US dollars in 2011 (refer to Appendix Ⅰ - A and Appendix Ⅰ- B), which is about 100 times higher than health expenditure per capita in India. The hospital services are provided by the public and private sector; "In 2011–12, there were 1,345 hospitals in Australia comprising: 736 public acute hospitals, 17 public psychiatric hospitals, 307 private free-standing day hospitals and 285 other private hospitals." (Australia's hospitals 2011-2012) "in 2011–12, there were 56,582 beds in public acute hospitals, 1838 beds in public psychiatric hospitals, 2957 beds in private free-standing day hospitals (based on 2010–11 data, ABS 2012) and 25394 beds in other private hospitals (based on 2010–11 data, ABS 2012)".(Australia's hospitals 2011-2012) And as mentioned earlier, roughly 75% of the healthcare service in India is provided by the private sector, while in Australia, only 45% is provided by the private sector.

I-5-3. Other Related Projects

In order to complete the analysis and get new ideas, it is necessary to conduct benchmarking on similar initiatives:

Partners for World Health (PWH), a non-profit organization from Maine, United States was considered during the analysis. PWH collects and distributes discarded medical supplies from hospitals, clinics and individuals, and deliver these hospital goods to developing countries. They also provide primary care services to third world countries and educate people about global health. They currently use two methods to deliver hospital goods: firstly, they deliver goods

through PWH Medical Mission Program: “items are packed into duffel bags to be hand delivered in foreign lands by individuals traveling on mission trips or privately”. On the other hand, they also deliver goods by container shipment. PWH has already shipped medical goods to 20 countries, for example: Cambodia, Tanzania, Peru, Bangladesh, Libya, Senegal, Colombia, Ethiopia and Sierra Leone. Their program is articulated by a network of volunteers, and sustained by donors. (More details refers to Appendix Ⅰ- E)

In Australia, the Royal Australasian College of Surgeon (RACS) provides specialist medical education, training and services to countries in need in the Asia-Pacific region and it has experience in sending underutilized equipment and conducting medical missions.

The Rotary Club of Melbourne has been working on a recycling operation project managed by Donations in Kind (DIK Store) store at West Footscray. In the past 10 years, over 350 containers have been shipped from the West Footscray Store. The goods are gathered by Rotarians with support from organizations who understand that their donated goods will go to people in need. (Note: Maya Shahani - during the time of preparing this report, an enquiry was received from Rotary Club regarding distribution of wheelchairs. They had received 500 wheelchairs in India, which needed to be given to individual end-users and not institutions. Finding so many individual users is reported to be a challenge. Note: Paula Scher – distribute in Sierra Leone.)

I-6. SWOT Analysis

To understand the project’s current position, we have carried out a SWOT analysis, which will illustrate the current strengths and weaknesses and highlight opportunities and threats the project may face.

Strengths

GDF counts on committed partners moved by an altruistic reason and inspiring goals, who possess a strong contact network in Australia and some countries of the world. The organization is currently working on one initiative supported by the United Nations, the Unity in Diversity project, which reinforces its credibility. Finally, as a new not for profit organization, its structure is simple and flexible, which allows ease of coordination among members and volunteers.

Weaknesses

Having mentioned the strengths, it is possible to mention some weaknesses such as the youth of the organization, which might influence the possibility to generate new partnerships with relevant stakeholders, the small number of volunteers currently working with GDF and the lack of a permanent financing alternative, which might be an impediment to achieve the project goals. (Note: It is very important to raise a sizable corpus fund for GDF to take care of all administrative expenses for a project of this size).

Opportunities

As mentioned before, there is a huge need for investment in health facilities in developing countries. The statistics demonstrate that the investment gap between developed and developing countries is in the thousands of dollars. To mitigate the need, there are some not for profit organizations around the world working to improve the health conditions in developing countries, not only by sending goods/equipment, but also medical support and health professionals.

As in Australia, there is a rising concern in the health services about the disposal of goods/equipment, regarding the economic costs and environmental impact. Moreover, there is a governmental concern on this matter which will be reflected in the government support to donate goods/equipment to developing countries.

Finally, there is an opportunity window for implementing this project given by a growing network of hospitals and social parties looking forward to helping countries in need, not only by donating equipment, but also volunteering medical services. Some of these parties are in continuous communication with GDF.

Threats

As this is a new project for GDF, there are some threats it may face in order to implement this project. First, GDF needs to consider the characteristics of the country that is receiving the goods, for instance; political situation, economic atmosphere, social fragmentation and corruption indicators. In this sense, as India will be the first destination for the donation, it is crucial to have a credible partner to assure the reception of the goods without problems in the Indian customs. The presence of a reliable partner would lessen potential risks such as legal

issues with customs, unclaimed goods/equipment, black market, etc. (Note Maya Shahani: Wokhardt Foundation is the receiving NGO in India. It is a highly credible and respected Foundation and has undertaken the responsibility of customs clearance. But GDF should not ship the goods till the customs clearance is obtained, as demurrage charges can be astronomical. It is also important to ascertain who would be liable for paying the penalty in the event of a delay. Will it be GDF or Wokhardt ?)

Secondly, as with any project, it is driven by motivated people with good intentions. Therefore, all those intentions would be diluted if the project is not moved to the action, missing all the opportunities already mentioned.

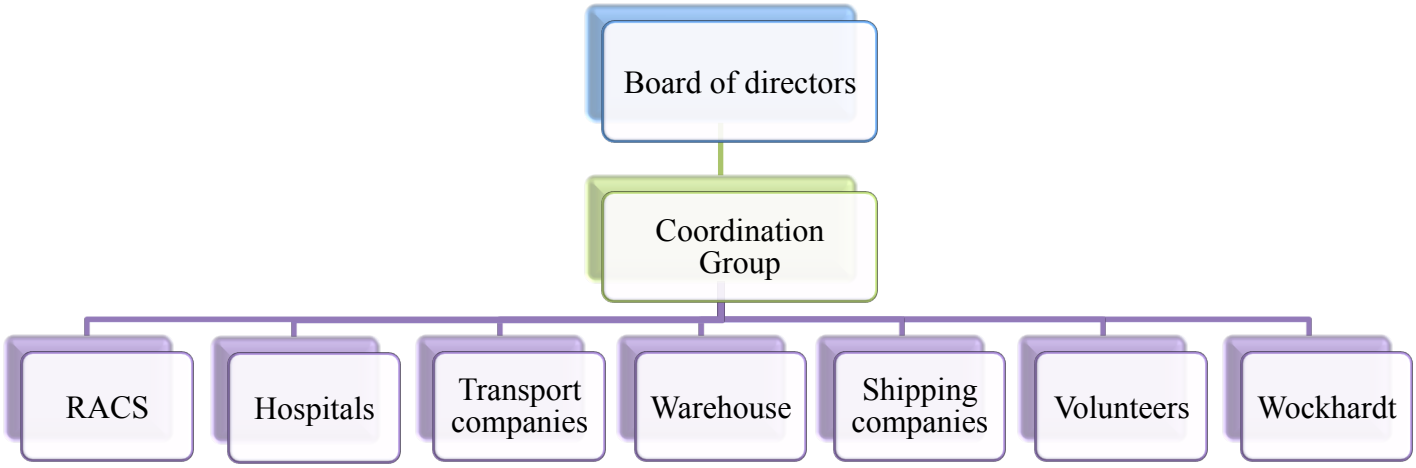
In conclusion, it is possible to say that this project is well positioned to be implemented as shown by the opportunities mentioned, especially the opportunity window that is open right now and the strong connection between GDF and health and social parties willing to contribute to this project. Therefore, GDF needs to use its strengths to overcome potential threats and consider extending the volunteers network in order to materialize the project and make it achievable. (Note: Paula Scher, The project cannot rely on donations to ensure its viability – partners should be signed up to provide an ongoing service to reduce the risk of a credibility gap year on year).

Part II. Articulation of the project

II-1. Project Governance

To implement this project, GDF needs to play a fundamental role supervising the whole process. In order to do so, the governance of the project should be structured, at the top, by a board of GDF members as well as some representatives from the main stakeholders involved in the process. This board will set the strategic lines of the projects as well as discuss progress, obstacles and improvements that can be made to the project. Under this board, a group of coordinators comprised primarily by volunteers, will be in charge of the communication among the different parties of the process, procuring the flow of the equipment from the hospitals to the country of destiny. GDF should position this group among the stakeholders as the ones responsible for coordinating the logistics. Finally, at the bottom of the structure are all the stakeholders involved in the process, who will be in continuous communication with the coordination group.

The following diagram summarizes the roles of stakeholders:



II-2. Project Process

The proposed project process has been divided into 8 main activities. These should be tested and modeled for proof of concept before implementation:

1. Disposal by hospitals

- At the starting point, hospitals will inform GDF with the list of items they want to dispose or are willing to donate. In the list, types, quantities, and condition of items should be specified.
- According to the supply list, GDF selects goods that are in usable condition and suitable to ship to India.
- If possible, hospitals should provide all documentation regarding the equipment such as instruction manuals and service history.

Options for this activity:

GDF should decide types of good and equipment to ship.

Option 1: Simple goods only that have not been used.
Option 2: Simple goods only, in a usable condition.
Option 3: All usable items, including high-tech equipment and simple goods. (Customs duty may apply on High Tech equipment, even though it is second hand)

2. GDF coordination

- The role of GDF in the project is to coordinate and keep a permanent contact with all

stakeholders involved in order to arrange and supervise the whole process.

- Also, GDF should create and maintain a database for the matching process of the project. (During the presentation, Melbourne Business School at University of Melbourne expressed an interest in assisting with this)

Options for this activity:

a) Structure of communication network

Option 1: GDF acts as the headquarters and information center. Stakeholders do not need to contact each other. Information is centralised at GDF before being disseminated to relevant stakeholders.

Option 2: GDF creates a platform through which all information is shared and all stakeholders can have access to the information.

b) Type of database

Option 1: Directly build a sophisticated database and use the same database as the project expands.

Option 2: Create a simple database such as Microsoft Excel and Access at the beginning stage of the project, and then change to more sophisticated database as the project expands.

3. Trucking

- Collect items from hospitals and move them to the warehouse.
- In cases where some items may need special packaging or sterilization, they will be transported first to a packaging or sterilization company, and then to the warehouse.

Options for this activity:

Party responsible for the trucking service

Option 1: Hospitals bear the cost of transportation as they already pay for the transport of disposed goods to landfill. (Preferred option)

Option 2: Use the services provided by one of the following trucking companies; Mainfreight International, Nationwide or Seaway Logistics.

4. Packaging activity

- For simple goods, workers in the warehouse package the goods.
- For extremely elaborate and delicate equipment, a professional company will perform the packaging to ensure safe arrival of goods, i.e., damage-free, for optimum performance in the destination country.

- For used items, a sterilization process might be necessary which will require sending the goods to a sterilization company.

Options for this activity:

a) Options for packaging company

Option 1: Packcentre
Option 2: Essentialpack

b) Options for sterilizing company

Option 1: Amcor
Option 2: Steritech
Option 3: IBA Sterilization

5. Warehouse storage

- Items received by the warehouse will be stored in the warehouse till the time GDF arranges the shipment.
- List of items available will be uploaded on the database. Workers in the warehouse will match the wish list with the supply list to determine which items to ship.

Options for this activity:

Options for warehouse service

Option 1: Use some space in the Rotary International warehouse.
Option 2: Use 3PL warehouse services such as Wallara Industries.
Option 3: Use the warehouse service from shipping companies.

6. Shipping activity

- There is no direct way to ship goods from Australia to India by sea; goods have to go through Singapore or Malaysia and be reorganized there. This activity takes approximately 35 days and it is a responsibility of the shipping company.

Options for this activity:

a) Options of shipping companies

Option 1: Mainfreight International
Option 2: Seaway Logistics

b) Options for shipping services

Option 1: Less than Container Load (LCL)

In this service, the items can be loaded with other goods in the containers. When the goods stop in Singapore or Malaysia, they are repackaged and reloaded to other containers. Using this system means the items should be transported to the shipping company for loading.

Option 2: Full Container Load (FCL)

In this service, the items take up full containers, and they don't need to be repackaged during the whole process.

7. Customs clearance

- Export clearance in Australia will be arranged by GDF.
- Import clearance in India will be arranged by agents of the recipient NGO in India.

No alternative is offered for this process.

8. Receiving and allocating activities

- When the items reach India, a GDF partner will be responsible for collecting them from the port and redistributing them to the areas of need.
- The partner from India will also allocate the items according to the wish list, install and test the performance of the equipment, and inform GDF about the results.

Options for this activity:

Options of receiving and allocating organization

Option 1: Indian Red Cross Society

Option 2: Wockhardt Foundation

II-3. Full Cost Analysis

At this stage of the feasibility analysis, the cost analysis is not accurate due to process uncertainty and lack of data. In this report, the cost analysis includes some assumptions and estimations, and is mainly for providing a guideline for cost reduction by outlining the cost composition.

II-3-1. Costs identified for the project

1. Freight cost
2. Warehouse rental
3. Trucking fee
4. Landfill fee
5. Database purchase and maintenance cost
6. Packaging cost
7. Tax and duty
8. Consulting fee

However, based on current information, only the first 4 costs will be included in the cost analysis.

II-3-2. Main assumptions

1. Cost is estimated in an interval reflecting possible situation changes.
2. As the project is just starting, there will be 5 participating donor hospitals.
3. The frequency of receiving medical goods from hospitals is once per month.
4. The frequency of shipping goods to India is once every two months.
5. 80% of goods collected from hospitals can match the wish list and will be sent to India. The 20% remaining will still go to landfill.

II-3-3. Overall Analysis

	Low	High	Comparison
Goods shipped (cbm)	48	240	x5
Total cost	60931.44	70739.48	+16%
Cost per cbm	1269.41	294.75	-77%

The estimated cost for the project is between 60,931 and 70,740 Australian dollars per annum and the amount of goods shipped to India is estimated to be between 48 and 240 cubic meters per annum.

As the amount of goods shipped increases exponentially, the cost of the project does not significantly. When the goods shipped increase 5 times from 48 to 240 cubic meters, the cost only increases by 16 percent, and the cost per cubic meters drops 77 percent, from 1269.40 to 294.70 Australian dollars.

The result suggests that efficiency increases as more goods are shipped each year. However, with not many donor hospitals and not many goods to ship at the beginning stage, the project may experience difficulties with low efficiency.

II-3-4. Cost composition

	Annual Low	Annual High	Proportion Low	Proportion High
Total Cost	60931.44	70739.48	100.00%	100.00%
Warehouse Rental	50000	50000	82.06%	70.68%
Freight Cost	5525.44	14109.48	9.07%	19.95%
Trucking Fee	5310	6150	8.71%	8.69%
Landfill Fee	96	480	0.16%	0.68%

The cost composition demonstrates that the fixed cost, warehouse rental, is the main part of total cost. The proportion of fixed cost decreases with the increase of quantity of goods shipped, which explains the increase of efficiency.

Another large composition of the cost is freight cost, where the costs of full container loads (FCL) and less container load (LCL) are calculated differently. FCL cost is not sensitive to quantity of goods, because it only depends on the number of containers needed. LCL cost are calculated by cubic meter, or ton. Therefore, the cost depends on the amount of goods shipped. As a result, if the amount is small and a full container is unnecessary, which is likely the case at the beginning stage of this project, LCL is much cheaper than FCL. As the project expands, FCL will become more appropriate.

(Note: We also need to factor in the cost incurred by the receiving NGO in India, such as customs duty, if any, transportation and subsequent distribution to remote villages, installation of the equipment, monitoring and reporting to GDF.

Initially, the cost may be prohibitive, and it may be more cost effective for GDF to donate funds to the receiving NGO to buy new equipment in India, rather than ship old equipment. But as the volume of shipment increases, the efficiency goes up and the cost of shipment, warehousing etc., goes down, which will make Global Shipment worthwhile. So this is a decision the GDF Board will have to take).

II-4. Risks Analysis

Any process has risks associated with it. In order to analyze them, the structure has been divided into four parts: Australia, shipping, India and overall the project.

II-4-1. Australia

Risk 1:

If the quantity of goods to send is small, the cost of sending them outweighs the benefit. The quantity and type of goods hospitals dispose of varies each time. As a result, it is hard to forecast the quantity of goods to be delivered in a certain period of time. Considering that running the project is very costly and requires a considerable amount of organizing work, the benefit of shipping small amounts is lower, compared to the cost.

Mitigation Measure:

GDF could wait to gather an amount of goods and equipment to ship and overcome the costs of sending small amounts. GDF can take advantage of containers with LCL offered by shipping companies in order to send small amounts and mitigate costs.

Risk 2:

There is a high possibility that some of the goods disposed by hospitals would not be in optimal condition.

Mitigation measure:

Hospitals participating in the project will need to send a list with the goods to be delivered, including condition of goods and lifespan of goods, which will allow GDF to determine what goods to receive.

II-4-2. Shipping process

Risk 1:

Some goods could be damaged during the shipping process due to the movement between places and ports.

Mitigation measure:

The mitigation strategy would be to take out an insurance policy to cover for damages that may arise.

II-4-3. India

Risk 1:

Policy violation. India has a strict guideline for receiving donated medical equipment, which is published on the webpage of the ministry of health. Therefore, if this guideline is applied, the

potential equipment to be donated can be limited, and the project may not accomplish its purposes.

Mitigation measure:

Establish strategic alliances with legitimate NGOs with the power of negotiation with the Indian authorities.

Risk 2:

Legal issues. Since parts of the goods and equipment delivered have been used before, there is a risk in the durability and future performance, which can influence in the service given to patients. Therefore if any accidents happen, GDF might face the risk of litigation. For medical goods such as gloves and bandages, hospitals usually do not dispose them unless they are used or expired. For the expired goods, a large proportion of them are still usable. However, it is not clear whether it is suitable to donate the expired goods to developing countries, or whether it would violate any law. This depends on the preference of the recipients as some do not mind expired but usable products, while some strictly do not accept expired goods.

Mitigation measure:

In order to avoid legal issues, legal consultants would be necessary to check that each part of the project meets legal regulation.

Risk 3:

Black market. Since it is impossible for GDF to have a detailed assessment of the background and condition of each receiver, there is potential risk in sending goods and equipment according to the receiver's wish list. This can be overestimated with the purpose to make profit out of the donations. If this is the case, the project would indirectly promote corruption.

Mitigation measure:

Establish strategic alliances with legitimate NGOs and a clear accountability process.

Risk 4:

Unclaimed equipment. If the goods and equipment are not removed from the wharf within a week after they reach port, GDF may incur a daily cost of up to $150.

Mitigation measure:

Establish strategic alliances with legitimate NGOs who can designate a responsible party to remove the goods and equipment from the wharf.

II-4-4. Overall

Risk 1:
Lack of funds. Funding is an important item to keep the project running. The project will not be sustainable if there is no consistent funding. Since the project is costly and it is contemplated to be run in the long term by GDF, the risk arises if there is no fundraising plan. (Very important point)

Mitigation measure:
In order to make the project sustainable, GDF should explore different financing alternatives in order to make the NGO and its projects sustainable.

II-5. Alternative Analysis

The Process with full cost analysis is the basic structure of the project. In order to implement the project with lower costs and risks, it is possible to identify some alternatives for GDF.

Alternative 1: GDF activities subsidized by partners.

Each activity of the process has an associated cost. So in order to decrease them or even eliminate them, GDF needs to use its network of potential partners to work on this project:

First, the transport cost from hospitals to warehouse can be negotiated with the donor hospitals by exchanging the landfill costs with the transport costs.
Second, the warehouse cost can be avoided if GDF manage the coordination between the disposal and shipping activities accurately. Rotary International can provide the expertise in packaging the items on site at the hospitals, thus eliminating the need for a warehouse.
Third, the shipping activity cost could be absorbed by Mainfreight if the items are shipped using the LCL option which is subject to load.

Pros
- Reduce costs incurred during the process
- Eliminate unnecessary activities such as finding a warehouse

Cons
- It requires a high level of coordination among the partners and GDF
- Conflicts between parties may arise easily

Alternative 2: Collaborate with Rotary International

As it was mentioned before, the Rotary organization is running a similar project. If GDF can collaborate with Rotary, it may cover the cost of the total operation such as freight and warehouse costs, and Rotary can also provide material and volunteers to sort, pack and ship the goods.

Even though Rotary has experience with this kind of project, it still faces some difficulties. The main problem faced by Rotary is the lack of funds due to the high costs involved in the warehouse and shipping activities which impact on the frequency of goods shipped. The second problem is the lack of a project manager which can coordinate the flow of goods from donors to recipients. Another problem faced by Rotary is the lack of communication between potential donors, relevant stakeholders and potential recipients.

Therefore, if GDF wants to make this project work, it can first join forces with Rotary by exploring the willingness of its partners to cooperate with Rotary as an alternative to the project. For example, Mainfreight can use underutilized space in containers to transport Rotary donations. GDF may also provide support by creating a communication network to connect all relevant stakeholders.

Pros

- Collaborating with Rotary can increase the efficacy of Global Shipment project and increase the amount of countries covered in this project.
- GDF can obtain the expertise to run Global Shipment project by itself in the future.
- GDF can fill the coordination role needed by Rotary to effectively manage its current projects.

Cons

- GDF will not be the sole leader of the Global Shipment project
- The image of GDF can be associated as a branch of Rotary which may be unappealing to some potential donors.

Alternative 3: Collaborate with the Royal Australasian College of Surgeons (RACS)

As mentioned before, the RACS is running a similar initiative with some Asian countries. At the moment, the main difficulty of this project is the matching between the supply and demand of equipment. RACS does not have a system where hospitals can upload the material they have available to dispose and where the countries in need can upload their needs, thus impacting on the efficiency of the process which rely completely on the coordination ability of the RACS.

GDF may join forces with RACS by helping with the coordination process, or contacting someone from its network to create a database which will be able to perform the matching between the supply and demand of equipment.

Pros

- The ongoing RACS project can increase its efficacy and coverage
- GDF can acquire the expertise to run a similar project by itself in the future

Cons

- GDF will not be the sole leader of the Global Shipment project
- The Global Shipment project was conceived as a project that would send any goods or equipment urgently needed by countries around the world. Therefore, limiting GDF participation to a coordination role or a database delivery may limit the aim and expansion of the overall project.

(Note: Working initially with Rotary is a good option till GDF acquires the expertise to run the programme on its own. Rotary has a global reach and is very active in India. Their packaging facility and warehouse availability is also a tempting offer. GDF will be seen as a collaborative partner rather than a subsidiary if it works together with Rotary or any other organization).

II-6. Recommendations

In alternatives 2 and 3, the projects currently managed by Rotary International and RACS are quite sophisticated. However, in alternative 1, GDF's project is still in the planning stage and more analysis is needed in order to be compared with the other two. As a result, in this report, the recommendations are focused on alternative 1 to provide the best options for each part of the process. Then, based on the recommendations, GDF can select among the 3 alternatives with further analysis.

II-6-1. Option Selection

1. Determine goods selection process

Elaboration:

At the beginning stage, GDF should ship simple goods/equipment in usable condition (beds, wheelchairs, crutches, scissors etc.).

Rationale:

- Low tech items would require less expertise to package and transport compared to high tech equipment.
- Quantity of unused low tech items suitable to ship may be small, because hospitals don't

usually dispose of brand new items in good condition.

- By shipping these low-risk items, the first few shipments would act as trial runs. This would make the future shipments easier as coordination is improved and problems are eliminated.
- GDF will be able to build credibility by successfully transporting the first few shipments of equipment.

2. Communication network structure

Elaboration:

A flat and open communication network among the relevant parties to coordinate the movement of equipment.

Rationale:

- An up-to-date and easy-to-access network will help the coordination of the entire process. An open communication network would allow stakeholders to directly access information when needed instead of relying on GDF as a centralized source of information which may cause delays and information overload.
- This type of communication network will help to share information among stakeholders, resulting in a well-coordinated process which encourages active involvement of all stakeholders.

If GDF decides to collaborate with Rotary, this recommendation would also help address the needs of Rotary.

3. Create a database

Elaboration:

Create a simple database such as Microsoft Excel and Access at the beginning stage of the project, and then change to more sophisticated database as the project expands.

Rationale:

- The amount of information and data needed to process is likely to be small at the beginning stage of the project as not many partners are involved.
- Upgrading a simple database is easier than adjusting a sophisticated one when the project is being expanded.
- Costs and manpower required to create and maintain a simple database are much lower.

However, if GDF choose to cooperate with Rotary or RACS to start the project, a more sophisticated database would be necessary.

4. Trucking

Elaboration:

Hospitals deliver equipment to warehouse.

Rationale:

- GDF can avoid the trucking costs when hospitals make the delivery.
- Even if hospitals make the delivery, they can still benefit from the project because hospitals are currently required to pay landfill and trucking costs whenever they dispose of goods or equipment. Hospitals can reduce their landfill cost by joining the project.

5. Packaging/sterilization

Elaboration:

a) Packaging company: No packaging company involved
b) Sterilization company: Steritech

Rationale:

- In the option of goods selection, the recommendation is only low-tech items will be shipped. As a result, these items can be packaged in the warehouse and specialized packaging company is not necessary.
- Steritech is a leading sterilization processor in the Asia-Pacific region and is based in Australia. It has a branch in Melbourne which facilitates the project.

6. Warehouse storage

Elaboration:

Use storage space in the Rotary warehouse.

Rationale:

Since Rotary can offer their warehouse space for free and expertise in packaging according to their capacity, the first choice would be to use their storage space as long as there is space available.

7. Shipping

Elaboration:

a) Shipping company: Mainfreight International

b) Shipping service: Less than Container Load (LCL)
c) International freight network, World Cargo Alliance – WCA

Rationale:

- LCL is more cost efficient at the beginning of the project.
- Mainfreight has already pledged free LCL space if available.

8. Receiving/allocating

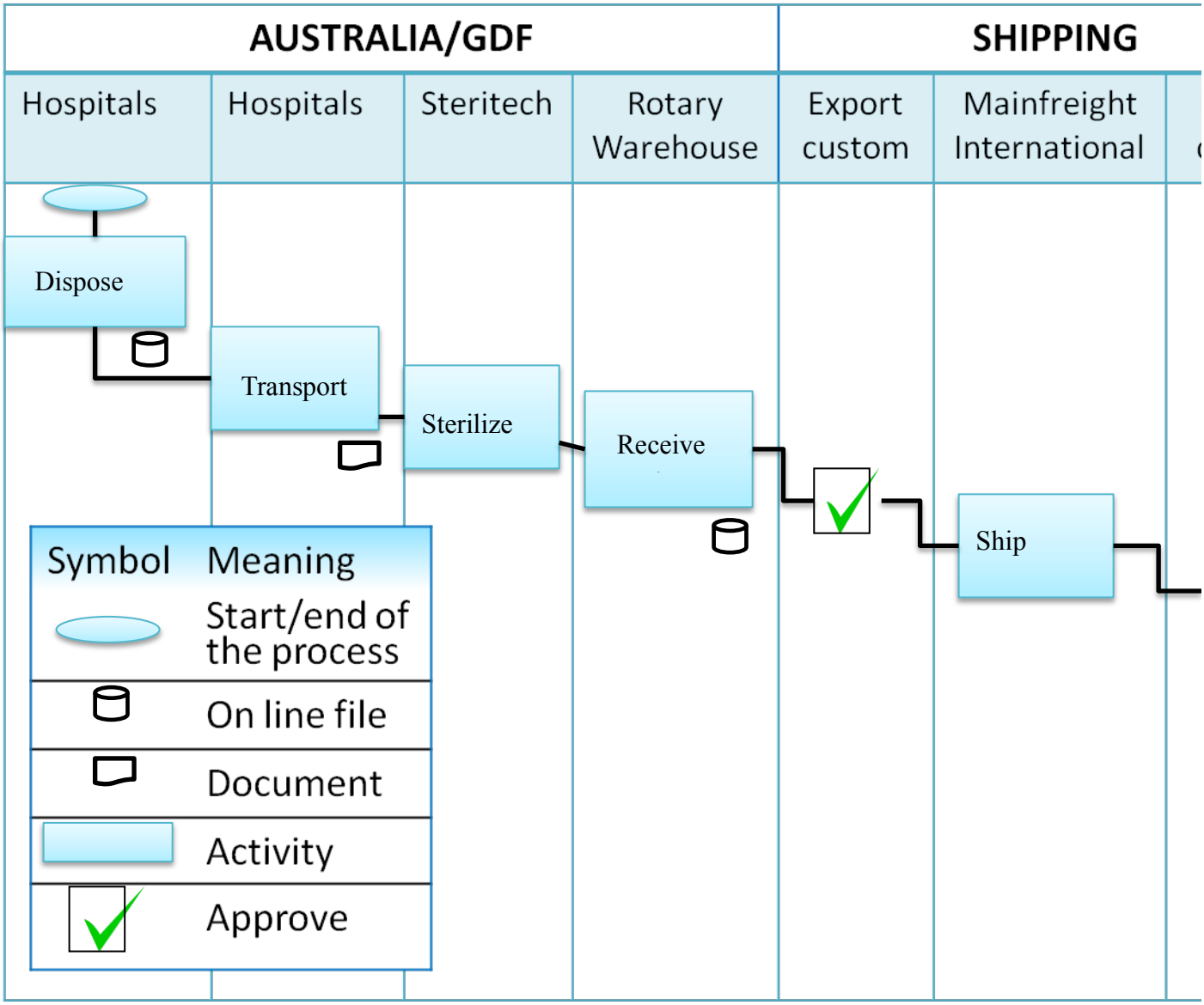
Elaboration:

Wockhardt Foundation takes charge of receiving and allocating activities in India.

Rationale:

- Wockhardt Foundation is a reliable partner of GDF in India and has agreed to be the party responsible for receiving and allocating.
- Wockhardt Foundation has a strong support network in India which would provide regular feedback on the needs of recipient hospitals and necessary maintenance and servicing.

Process flowchart of selected options at each stage



II-6-2. Next steps

1. Increase GDF brand awareness/increase ongoing awareness on program
2. Improve the accessibility to the website/donate link in the website (money and equipment)
3. Explore various sources of sponsorship
4. Adapt model to be scaled up to other countries/other materials such as educational items
5. Create a volunteer program

1. ***Increase GDF brand awareness***

   - ***Increase ongoing awareness of Global Shipment program***

Elaboration:

- Participate in events such as the "Windows of the World" exhibition in 2009 and collaborate with relevant hospitals in community engagement programs.
- Increase presence on social media (Facebook, Twitter) by providing regular updates on GDF and the Global Shipment project.
- Investigate opportunities working with Doctors Without Borders

Rationale:

- More people will be willing to participate in the project.

2. ***Improve the accessibility to the website/ create a donate link in the website (money and equipment)***

Elaboration:

a) Obtain the services of a web developer to redesign the GDF website to make it more user-friendly and accessible.
b) A donation link can also be created in the website for cash and equipment donations.

Rationale:

- An easily accessible website will increase the credibility of GDF while attracting more donations from people who are interested in the cause.

3. ***Explore various sources of sponsorship***

   - ***Approach government as potential sponsor of the project***

Elaboration:

a) The government is currently rolling out an agreement to send medical equipment to remote areas in PNG.
b) Contact relevant parties in the government to assess their interest in a similar plan to India.

Rationale:

- By having a precedent case, it will ease custom clearance processes, highlight possible problems that may occur during the process and identify other relevant sponsors.

- ***Establish a channel for individuals to donate***

Elaboration:

GDF can receive donations from individuals at a warehouse.

Rationale:

- RACS has expressed that they receive a large quantity of unwanted supplies from individuals and hospitals on a daily basis, which shows that there is an untapped source of goods.

- ***Conduct fundraising activities***

Elaboration:

a) GDF can make grant applications to the United Nations (UN), the state and federal government (organisations such as AusAid) for funding for the Global Shipment project.
b) GDF can apply for Deductible Gift Recipient (DGR) status which would allow philanthropic funding as donations would be tax deductible.
c) GDF can create a business consultancy program which charges a fee for organisations to effectively manage culturally diverse workforces.

4. Adapt distribution model to be scaled up to other countries and other materials such as educational items

Elaboration:

After the distribution model for medical equipment is refined and improved, it can then be adapted to meet the needs for materials such as educational items in other countries.

Rationale:

- The model needs to be flexible as different countries have different needs and different customs clearance processes.
- GDF is well placed to expand the Global Shipment project to other countries as there is currently a plan to form country chapters in various countries around the world.

5. Create a volunteer program

Elaboration:

a) Volunteers are required to coordinate the process, summarise equipment information as they arrive in the warehouse, check the state of equipment, package and move simple

equipment.

b) Volunteers may include doctors, medical equipment technicians/engineers and warehouse workers from organisations such as Red Cross, Rotary and university societies.

Rationale:

- A volunteer program would help save costs, increase awareness in the community and provide a constant source of manpower for the Global Shipment project.

Part III. Appendixes

Appendix Ⅰ - A

Health Expenditure per capita (US$)

Total health expenditure is the sum of public and private health expenditures as a ratio of total population. It covers the provision of health services (preventive and curative), family planning activities, nutrition activities, and emergency aid designated for health but does not include provision of water and sanitation. Data are in current U.S. dollars.

Country \ Year	2007	2008	2009	2010	2011
Australia	3956	4237	4118	5174	5939
Canada	4341	4630	4522	5257	5630
South Korea	1361	1229	1174	1452	1616
United States	7482	7760	7990	8233	8608
United Kingdom	3910	3760	3445	3495	3609
China	114	157	191	219	278
Philippines	66	75	77	89	97
South Africa	456	445	495	631	689
India	40	43	44	51	59
Indonesia	58	62	65	84	95

(Data from The World Bank database: http://data.worldbank.org/indicator/SH.XPD.PCAP)

Appendix Ⅰ - B

Health expenditure, total (% of GDP)

Total health expenditure is the sum of public and private health expenditure. It covers the provision of health services (preventive and curative), family planning activities, nutrition activities, and emergency aid designated for health but does not include provision of water and sanitation.

Country \ Year	2007	2008	2009	2010	2011
Australia	8.5	8.8	9	9	9
Canada	10	10.3	11.4	11.4	11.2
South Korea	6.3	6.5	6.9	7.1	7.2
United States	16.2	16.6	17.7	17.6	17.9
United Kingdom	8.4	8.7	9.7	9.6	9.3
China	4.4	4.6	5.1	5	5.2
Philippines	3.9	3.9	4.2	4.1	4.1
South Africa	7.8	8	8.7	8.7	8.5
India	3.9	3.9	3.9	3.7	3.9
Indonesia	3.1	2.8	2.9	2.8	2.7

(Data from The World Bank:http://data.worldbank.org/indicator/SH.XPD.TOTL.ZS/countries)

Appendix Ⅰ - C

Size of Indian Hospitals

84% of private hospitals	< 30 beds
10%	< 30 - 100 beds
5%	< 100 - 200 beds
1%	> 200 beds

(Data from Healthcare indicators, n.d.)

Appendix Ⅰ - D

Rural Population in Rajasthan, Uttar Pradesh, Maharashtra and Karnataka

Population 2001 Census

State	Rural	Urban	Total	Rural %
Rajasthan	43292813	13214375	56507188	76.6
Uttar Pradesh	131658339	34539582	166197921	79.2
Maharashtra	55777647	41100980	96878627	57.6
Karnataka	34889033	17961529	52850562	66

Population 2011 Census

State	Rural	Urban	Total	Rural %
Rajasthan	51540236	17080776	68621012	75.1
Uttar Pradesh	155111022	44470455	199581477	77.7
Maharashtra	61545441	50827531	112372972	54.8
Karnataka	37552529	23578175	61130704	61.4

(Data from: Rural Health Statistics in India, 2011)

Appendix Ⅰ - E

Organization Name: Partners for World Health
Organization Background: a non-profit all volunteer organization
Organization Mission: Partners for World Health collects and distributes discarded medical supplies, reduces environmental waste, provides primary care services to third world countries and educates people about global health.
Organization Location: Maine/USA

Programs:
PWH Medical Mission Program

a) PWH organizes Medical Mission trips through Africa, South America and SE Asia.
b) Two weeks in length for physicians, nurses and non-medical volunteers who deliver up to 2000 pounds of needed medical supplies and equipment to the host hospital and clinics, provide needed surgical services and primary healthcare to facility patients in partnership with the hospital staff, offer medical and nursing education and instruction to host facility staff and perform non-medical duties including cleaning and minor repairs and painting.
c) Most recently PWH has expanded this program to include nursing students from SMCC and St. Joseph's College and medical students from UNE.
d) A large part of the PWH Medical Mission Program is focused on providing education and skills training to nurses, nursing students and community health workers.

e) In the last three years PWH Medical Mission Programs have been held in Cambodia, Tanzania, Peru, Bangladesh, Libya, Senegal, Colombia, Ethiopia and Sierra Leone. Additional requests have been made from Sudan, Zimbabwe, Uganda, Burundi, Viet Nam and Burma.
f) 2013 goals include Medical Mission trips to Bangladesh, Senegal, Cambodia, Tanzania, Ethiopia and Colombia. PWH will organize every aspect of the international experience and transport needed medical supplies for each trip. In addition we have secured funding of a 40' container to Senegal. Four additional containers will be sent to Bangladesh and Tanzania this year, once funding has been secured.

Other important information:
Partner for World Health is a 501 (c) 3 organization and all donations are tax deductible.
Donation link and other "Get Involved" links on the website (Volunteer, Donate Medical Supplies, Financial Support, etc.)
Wish List on the website
Volunteers can be anyone, but some criteria are applied (Students under 17 or disabled individuals must be accompanied by an adult; children under 10 cannot be accommodated for obvious reasons.)
A medical background, while helpful, is not necessary to perform most tasks in the warehouse. There is always at least one trained lead volunteer (Point Person) available whenever the warehouse is open to provide orientation, instruction and guidance to volunteers.

Volunteer tasks:
a) Opening incoming material in bags or boxes and macro-sorting the items into general category bin
b) Micro-sorting general category bins into bins of same or similar items
c) Counting, bagging and labeling similar items
d) Combining several dissimilar but related items into "kits"
e) Packing counted and bagged items into boxes, sealing same and labeling for shipment
f) Cleaning plastic basins, bottles, etc.
g) Transferring like liquids to create full containers
h) General organizational tasks
i) Removing unsealed, damaged or expired items from the recovery stream
j) Volunteers pick-up the unused medical supplies and bring them to the PWH warehouse for sorting, cataloging, cleaning (if needed) and packaging.

Hospitals, clinics, doctors' offices, nursing homes, community centers and even individuals can donate. If you have clean, gently used but no longer needed medical supplies at work or at home, these items can be dropped off whenever the warehouse is open.
A large number of our volunteers are made up of retired persons who are looking for a way to

give back to our community and our world.

Hospitals, clinics, nursing homes and doctors' offices normally discard - in compliance with institution and/or government policies - a constant stream of medical supplies. Discarded items include thousands of pounds of sterile syringes, needles, tongue depressors, tourniquets, wound dressing supplies, sterile and non-sterile gloves, hygiene products, surgical gowns, and an endless supply of plastic tubs, water pitchers and bedpans. Durable equipment such as crutches, wheel chairs and hospital beds in good condition are also regularly sent to landfills.

Donate these items can save landfill fees

In some cases the supplies are organized into boxes and prepared for container shipment to under-served countries throughout the world. In other cases, items are packed into duffel bags to be hand delivered in foreign lands by individuals traveling on mission trips or privately.

PWH identifies responsible, local hospital representatives in foreign countries who assure the supplies reach deserving urban and rural hospitals and clinics.

Medical waste reduction has two important benefits

a) Less demand is placed on landfill sites from non-biodegradable medical items
b) Medical institutions enjoy reduced costs for solid waste stream disposal

The following is but a small sample of non-biodegradable, disposable and durable items arriving regularly at the PWH warehouse that previously would have been part of the solid waste stream

1. Tape
2. Scissors
3. "Chucks"
4. Baby diapers, bottles, formula and clothes
5. Test tubes
6. Ambu bags
7. Oxygen & IV tubing
8. Surgical instruments
9. Stethoscopes
10. Forceps
11. Orthopedic braces
12. CPR equipment
13. Hemostats
14. Personal care items such as combs and toothbrushes
15. Personal hygiene items like skin lotions, protective barriers, toothpaste and mouthwash
16. Sheets & towels
17. Mattresses
18. Exam tables
19. Crutches, walkers and potty chairs
20. IV poles
21. Blue wrap

Part IV. Reference Lists

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