I. Introduction and Context

Country Context

Indonesia is a Party to the MP. For the MP compliance, the Government of Indonesia (GoI) is eligible for assistance from the Multilateral Fund (MLF) for the Implementation of the MP as a developing, or “Article 5” country and has undertaken a number of ODS Phase-out projects since 1994, including the Sector Plan for the Phase-out of CFC-11 in the PU Foam Sector approved in 2003 with the support of the World Bank. Indonesia achieved complete phase-out of CFC-11 consumption in the foam sector by January 1, 2008, two years ahead of the MP obligations.

Indonesia has received approval from the Executive Committee of the Montreal Protocol on the Foam HPMP with a grant amount of US$ 2,714,187 at the 64th ExCom Meeting on July 2011.

GoI is now poised to embark on the first stage of HCFC phase-out, starting with a freeze in consumption of its 2009 and 2010 average baseline by 2013 and 10% reduction by 2015. An overall HCFC Phase-out Management Plan (HPMP) Stage I to meet these two targets has been prepared with support from the Implementing Agencies under the MLF.
UNDP is the lead agency for the overall HPMP Stage I preparation while the Bank, in close
collaboration with the GoI, takes the leading role in the development of the HCFC Phase-out Plan in
the Foam Sector as part of the overall HPMP Stage I.

Sectoral and Institutional Context
HCFC-141b is predominantly used in PU foam manufacturing in Indonesia, although some
HCFC-141b consumption exists for commercial refrigeration. The treatment of this latter
consumption falls under the Indonesia HCFC Phase-out Plan in the Refrigeration Sector with
UNDP.

Foam manufacturing companies consuming HCFC-141b in Indonesia can be divided into two main
groups: rigid foam and integral skin (IS) foam, with 55 companies producing the former and 18
companies the latter as of 2009 (with three having foam production in rigid foam and IS foam). The
majority of currently existing PU foam enterprises is small to medium-size, with only 15 that can be
considered large based on HCFC consumption.

The PU foam sector in Indonesia can be further categorized into 12 major foam sub-sectors. The
combined list of products stemming from these subsectors include: insulation PU foam in
appliances (domestic refrigerators and freezers), water heaters, sandwich panels, slabstock foam,
spray foam, insulation foam for refrigerated trucks, thermoware, and integral skin foams for the
automotive and furniture industry. Table 1 shows the HCFC-141b consumption in the production of
PU foam in 2008 by subsector.

The table 1 below classifies the HCFC-141b-based PU foam consumption in 2008 according to
subsector. (The table can be found on the attached PID as the supporting document)

Indonesia’s HPMP: Table 2 summarizes the phase-out requirement of HCFC consumption on the
national level as proposed by Indonesia in its HPMP. (The table can be found on the attached PID as
the supporting document).

Priority Sectors: In accordance with the proposed national HCFC phase-out target of 133 ODP tons
by 2015, GoI selected three major sectors – the air-conditioning sector, the refrigerator sector, and
the foam sector – as the priority sectors that will enable achievement of this target. The fire
protection and solvent sectors, which consume a small quantity of HCFCs, will be addressed in the
subsequent phases of the HPMP.

As per the decision of the 64th ExCom meeting, the phase-out target for Indonesia for the first
phase is 134.97 ODP tons by 2018. The agreement includes TA for refrigerant management from
the Government of Australia with a calculated ODP phased-out of 3.67 ODP tons. The ExCom
approval reflects the GoI’s strategy to meet its overall HCFC freeze in 2013, and to reduce HCFCs
consumption by 20% of the baseline by 2018.

Table 3 shows details of the agreed ODP phase-out requirement by 2018 by sub-sector and by the
implementing agencies that support them. (The table can be found on the attached PID as a
supporting document)

PU Foam Sector: In the foam sector, the target is a reduction of HCFC-141b consumption by 10%
by 2015, and an additional reduction of 10% of the baseline by 2018. The current foam sector plan covers 34.1 ODP tons from the starting point for a sustained aggregate reduction in HCFC consumption. By 2015, the foam sector is targeted to phase out a minimum of 18.9 ODP tons, which represents about 55% of the targeted reduction of 34.1 ODP tones. The remaining phase-out of 15.2 ODP tons is to be delivered by 2018.

The overall HCFC-141b phase-out strategy in the PU foam sector is to adopt a sectoral phase-out schedule following the MP’s HCFC phase-out schedule, except for the 2015 reduction target for which an advanced reduction is required to make up for the slower rate of consumption reduction in the service sector. Phase-out priority will be given to the sub-sectors where market incentives and phase-out capacity exist.

Constraints to overcome in phasing out HCFC use in the Indonesian foam sector include the following:

- **Availability of alternatives** – the alternative blowing agent is relatively new and not yet widely available in the Indonesian market, which could jeopardize ready and continuous supply making foam blowing companies reluctant to switch.
- **Counterpart funding** – the phase-out of HCFCs may require retrofitting or replacement of existing equipment and more stringent safety requirements to use the new blowing agent and thus incrementally higher operating costs. Phasing-out of HCFCs requires enterprises to provide own financing sufficient to support an effective phase-out.
- **Market competitiveness** – the higher price of new blowing agents will increase the direct material costs and thus the price of HCFC-free foam products, making suppliers that switch to HCFC alternatives less competitive in the market.
- **Small size of many foam enterprises** – foam producers with a very limited production capacity may find it difficult to keep up with the HCFC phase-out and may not be able to justify the increased costs. How these producers will react will depend very much on the technology options that chemical suppliers will offer.
- **Continued availability of HCFCs** – HCFC-141b is widely used in all foam sub-sectors. The phase-out of HCFC in some sub-sectors and applications may be difficult to control when chemical suppliers continue to sell HCFC blowing agents to foam enterprises that produce more than one type of foam product.
- **Import controls** – demand and supply of HCFC alternatives needs to be balanced in line with planned HCFC import restrictions in order to avoid hampering the production process of foam enterprises in Indonesia.

Taking into account the feasibility of alternative technologies, market competition, technical and financial capacity of foam enterprises, management capacity of the executing agency, and funding availability from the MLF, it is strategically important that phase-out activities be limited to a select group of sub-sectors. Criteria for selection of prioritized sub-sectors for HCFC-141b phase-out under the Phase I PU Foam Sector Plan include:

a) Successful experience in implementing the selected alternatives;
b) Technical, financial and management capacity of targeted enterprises; and
c) Availability of cost-effective options.

Following the above criteria, the Foam Technical Working Group (TGW) analyzed the implementation feasibility for all foam sub-sectors identified in the previous sections and recommended giving priority to the five sub-sectors shown in Table 4. (Table 4 can be found on the
attached PID as the supporting document).

Technology and climate impact: In response to Decision XIX/6, the Phase I PU Foam Sector Plan promotes the adoption of hydrocarbon technology wherever possible in order to yield maximum climate benefits. However, hydrocarbons are flammable and therefore safety concerns are an important consideration, which requires more costly adjustments at the production site and can necessitate an expensive relocation of the production facility, e.g. from a residential neighborhood to an industrial part. Thus, for those enterprises for which hydrocarbon technology is not a viable option other technologies with higher GWP, in particular HFCs, must be considered.

In the Indonesian context, higher GWP alternatives are required, and will be supported by the project, as most foam enterprises are small and medium size enterprises, for which hydrocarbon technology is not financially viable. Moreover, due to domestic regulations on safety, hydrocarbon technology cannot be used at existing facilities of most small and medium size enterprises. Relocation of the production facilities would require a longer project implementation timeframe and is not considered an option for most beneficiary enterprises. Therefore, higher GWP alternatives are required in order to ensure that Indonesia will meet its freeze and 10% consumption reduction obligations in 2013 and 2015.

Regarding the overall climate impact, the proposed 50% reduced HFC-245fa formulation will indeed result in climate benefits in comparison with the HCFC-141b technology. Since HCFC-141b has a GWP of 780 in comparison with GWP of 520 for 50% reduced HFC-245fa, the climate benefit per MT of HCFC-141b phase-out is 260 tCO2-equivalent.

Sustainability: To ensure sustainability of the phase-out and a level-playing field for enterprises in the respective sub-sectors targeted by the Phase I HPMP, GoI will put policies and regulatory measures in place to ensure a complete phase-out in these sub-sectors. Moreover, import control and restriction of imported HCFC-141b pre-blended polyol, including a further investigation into the downstream use of imported pre-blended polyol will be carried out during the implementation of the Phase I HPMP.

Relationship to CAS

The proposed project directly supports the Country Partnership Strategy FY2009-2012. In the context of this strategy, the Bank is supporting Indonesia to respect commitments to international environmental conventions on climate change and ozone depleting substances.

The project is also consistent with the Bank’s 2012-2022 Environment Strategy with its messaging around clean, green and resilient agendas. The Strategy explicitly recognizes that global impacts of hazardous chemicals will continue to be a priority for the World Bank in helping countries to fulfill their obligations to address global pollution risks. The strategy specifically mentions the Montreal Protocol and its Multilateral Funds, their engagement in the phase-out of HCFCs until 2030 and the important contribution that this will make to addressing climate change.

The Bank has played a major role in assisting developing countries develop and implement policies, and investment and technical assistance (TA) activities to meet their obligations under various international conventions. The World Bank is one of the implementing agencies for the Multilateral Fund for the Implementation of the Montreal Protocol (MLF) and Global Environment Facility (GEF). For the MLF, the Bank has assisted its client countries to phase out over 282,000 metric
tons (MT) of ozone depleting potential (ODP). This represents nearly 70% of the total ODP phased out under the MLF.

The Bank has been engaged in ODS phase-out activities in Indonesia since early 1990s, and was an important partner in assisting it to phase out CFC consumption by 2009. As CFCs are very high GWP gases, eliminating their consumption has resulted in significant climate benefits. The climate benefits achieved for example by the ongoing ODS Project are equivalent to emission reductions of 29.24 million tons of CO2.

II. Proposed Development Objective(s)

Proposed Development Objective(s) (From PCN)

27. The PDO is to reduce the consumption of HCFC-141b in the foam sector in Indonesia in order to contribute to the government’s efforts to comply with its phase-out obligations for HCFCs under the Montreal Protocol.

Key Results (From PCN)

28. The project’s key results indicators will be the reduction of the consumption of 34.1 ODP tons of HCFC-141b in the foam sector in Indonesia in order to contribute to the government’s efforts to comply with its MP phase-out obligations for HCFCs. The project plans to achieve this results in three phases as follows:
   a) Freeze consumption at the 2009-10 average baseline level by 1 January 2013.
   b) Eliminate consumption of 18.9 ODP tons of HCFC 141b in the foam sector by 1 January 2015.
   c) Eliminate consumption of a further 15.2 ODP tons of HCFC-141b in the foam sector by 2018.

29. The covered foam sector includes only those enterprises that are direct beneficiaries of this World Bank project. A list of the covered enterprises was drawn up during the first validation exercise in 2009-10 and is on file. This list and the current HCFC-141b consumption by the covered enterprises will be confirmed as part of a revalidation exercise during project preparation and may need to change to achieve the targeted reductions. (Note that four large enterprises in the foam sector are supported by UNIDO and are not part of the Bank’s project).

30. The HCFC phase-out will be done in a manner that maximizes, as far as possible, the climate co-benefits through the introduction of zero to very low GWP alternatives. The project aims to achieve climate benefits by phasing out HCFC-141b through the promotion and use of hydrocarbon or other zero GWP technology in enterprises where this is possible. While the climate impact of the project will be positive (see below), it is currently not possible to quantify this impact since it depends on the technological choices of beneficiary enterprises.

III. Preliminary Description

Concept Description

The project is being developed to help implement Indonesia’s HPMP (Phase I). The project covers the sector plan for phase-out of HCFC-141b in the foam sector and will run from 2012 through 2019. There is an expectation that, in 2019, the project may be restructured to include a Phase II sector plan to achieve subsequent reduction and phase-out targets.

The project will assist Indonesia and the eligible enterprises in the prioritized PU foam-producing subsectors with investment support (grant) and technical assistance (TA) for the introduction of new production technologies and processes. In addition, the project will facilitate the promulgation of
related policies and regulations to ensure compliance and sustainability of the phase-out.

The proposed project can be considered a continuation of the earlier CFC Phase-out project (ODS I), and lessons learned from ODS I will be integrated into the design of the proposed project. Since 1993, Indonesia has dealt with individual foam projects and foam group projects. The Foam Sector Plan (approved in 2004) obliged the Government to deliver on sectoral phase-out targets. The National Ozone Unit (NOU) established for ODS I will execute the proposed project, and members of the Bank’s team were also involved in ODS I. Due to the similar nature of the proposed activities and those under ODS I, it is proposed to replicate the project arrangements in ODS I. The proposed project will employ the infrastructure and capacity established under ODS I to deliver the required assistance to beneficiaries and stakeholders. The project will therefore include a combination of investment, TA, and policy and regulatory interventions, which will be carried out in tandem in order to ensure timely achievement of project objectives.

Project Description

Component 1: Investment in HCFC consumption reductions (US$ 2,514,187)

In accordance with the above criteria and a recommendation by the Foam TWG, GoI has selected 26 eligible enterprises operating in the five priority sub-sectors shown in Table 4. All 26 enterprises are eligible and expected to participate in the project, subject to the revalidation of their ongoing production and consumption of HCFCs.

The project will support phase-out in these enterprises by introducing an alternative, non-HCFC consuming production technology. The project will achieve this through TA and a grant that will cover a part of the enterprises’ conversion costs. The scope of this component will include the selected 26 enterprises, which will be revalidated at the start of the project, and possibly additional enterprises, to ensure a total phase-out of 34.12 ODP tons of HCFC 141-b by 2018.

Component 2: Technical assistance, supporting policies and regulations (US$ 110,000)

The project will finance TA activities supporting HCFC phase-out. The activities will include, among others, (i) training, (ii) identification and testing of low carbon blowing agents, (iii) development of guidelines for use of hydrocarbons in the different foam applications, (iv) revision of existing foam standards to remove any barriers for HCFC-141b phase-out, and (v) introduction of new low-carbon blowing agents. A list of TA activities with objectives, scope of work and costs for the first two years of the project will be developed during the project preparation stage. Additional TA activities beyond 2013 will be identified during project implementation. This flexibility will allow the project to adapt to evolving technological needs and circumstances and take advantage of the experience gained from the early phase of project implementation.

Policies and regulations at the national, provincial and sector levels will be established to support the phase-out of HCFC-141b. Based on experiences from previous ODS activities, sustainable HCFC phase-out in each sub-sector will best be achieved through a complete ban on the use of HCFC in that particular sub-sector.

(i) Policies preventing establishment of new foam manufacturing facilities using HCFC-141b and expansion of existing HCFC-based production facilities will be developed and implemented under the project.
(ii) A complete ban of HCFC-141b usage in 3 out of 12 existing applications, or subsectors, will be part of this component. Specific applications that will be subject to a complete ban will be determined through the project.
(iii) A HCFC import quota system will be introduced in 2013 to ensure that reduction targets will be achieved and consumption levels stay below the agreed limits.

Component 3: Capacity building and project management (US$ 90,000)

A Project Management Office (PMO) with full responsibility to implement the Phase I PU Foam Sector Plan will be established. The PMO will support all sectors and phase-out projects regardless of implementing agency. To maintain expertise and continuity, staff and experts of the PMO for the CFC Phase-out Plan will be assigned to this new Office.

IV. Safeguard Policies that might apply

<table>
<thead>
<tr>
<th>Safeguard Policies Triggered by the Project</th>
<th>Yes</th>
<th>No</th>
<th>TBD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Assessment OP/BP 4.01</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Habitats OP/BP 4.04</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forests OP/BP 4.36</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pest Management OP 4.09</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Cultural Resources OP/BP 4.11</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indigenous Peoples OP/BP 4.10</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involuntary Resettlement OP/BP 4.12</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety of Dams OP/BP 4.37</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projects on International Waterways OP/BP 7.50</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projects in Disputed Areas OP/BP 7.60</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

V. Tentative financing

<table>
<thead>
<tr>
<th>Financing Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borrower</td>
<td>2.52</td>
</tr>
<tr>
<td>Montreal Protocol Investment Fund</td>
<td>2.71</td>
</tr>
<tr>
<td>Financing Gap</td>
<td>0.00</td>
</tr>
<tr>
<td>Total</td>
<td>5.23</td>
</tr>
</tbody>
</table>

VI. Contact point

World Bank
Contact: Johannes Heister
Title: Senior Environmental Specialist
Tel: 458-4280
Email: jheister@worldbank.org

Borrower/Client/Recipient
Name: Ministry of Finance
Contact: Tor Tobing
Title: 
Tel: +62 (0)81-285-19530
Email: tortobing 2011@gmail.com

Implementing Agencies
Name: Ministry of Environment
Contact: Sulistyowati
Title: Assistent Deputy Minister for Mitigation and Preservation
Tel: 62218517164
Email: listy@menlh.go.id; listy_78@yahoo.com

VII. For more information contact:
The InfoShop
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 458-4500
Fax: (202) 522-1500
Web: http://www.worldbank.org/infoshop