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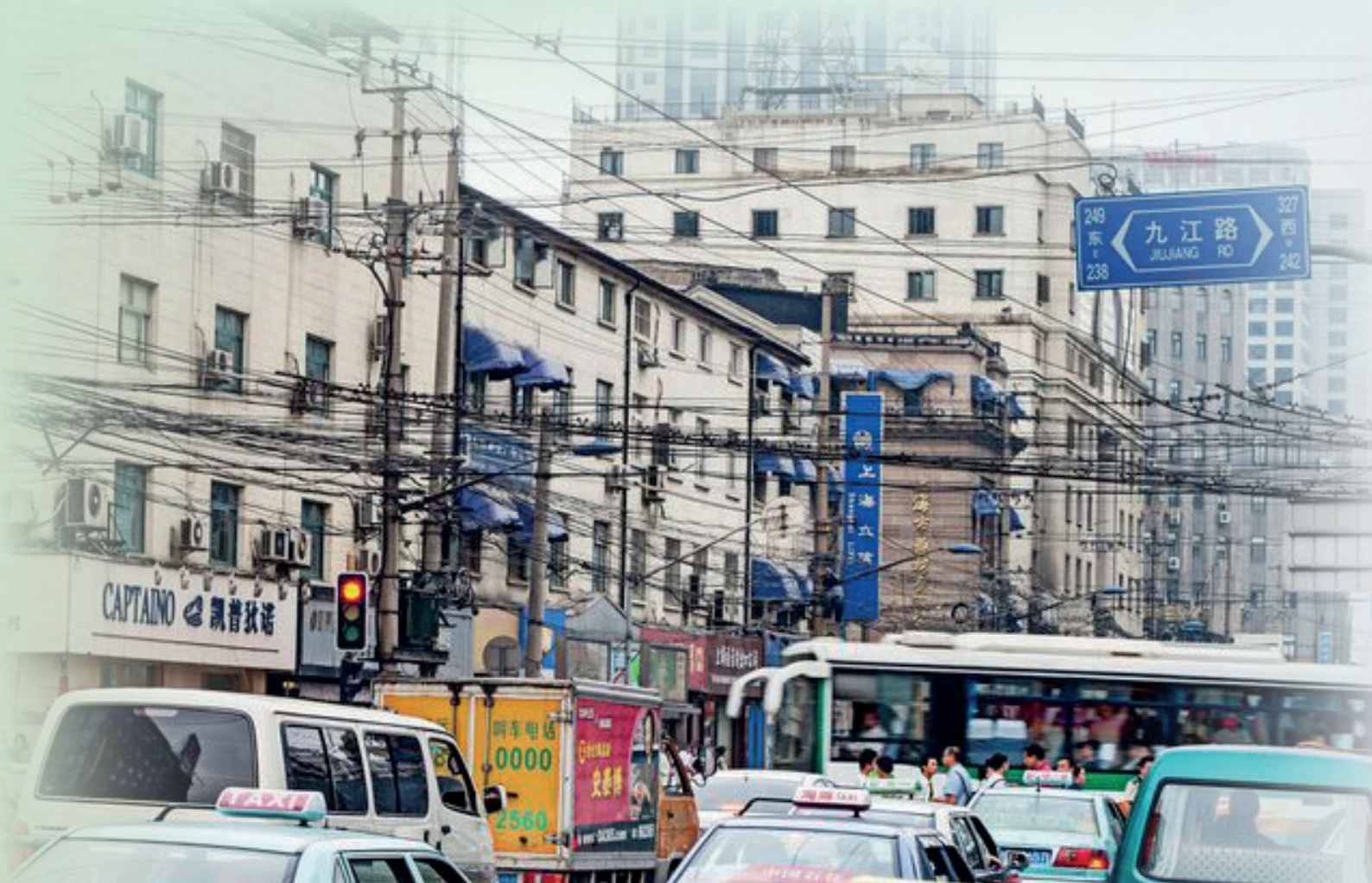
Promoting Ozone *and* Climate-Friendly Technologies in Public Procurement

A Scoping Study of Asia Pacific



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I. Introduction

The Government/Public Sector is a major procurer of goods and services for most countries. In some cases, it has been noted that the share of government spending is up to 30% of the GDP in developing countries[1]. There is an increasing trend of governments and public institutions taking initiative to promote sustainability in public procurement processes. Sustainable public procurement practices can support governments to meet their economic, environmental protection and social goals[2].

Governments can spend a significant portion of their budgets on public facilities and equipment that may use ozone-depleting substances (ODS), such as refrigeration and air conditioning (R/AC) equipment. ODS are used in R/AC systems and buildings in public facilities such as government offices, hospitals and universities, many of which are operated around the clock, thereby making the public sector a potentially significant source of ODS consumption and emissions.

The Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol) has phased out the global production and consumption of key ODS including CFCs, halons, and includes the ongoing phaseout of hydrochlorofluorocarbons (HCFCs). The Montreal Protocol has resulted in twin benefits: protection of the ozone layer and also of the climate system, since ODS are also potent greenhouse gases (GHGs)[3].

With the ODS phase-out under Montreal Protocol, the use of ozone-friendly alternatives such as hydrofluorocarbons (HFCs) has increased rapidly. However, HFCs are potent greenhouse gases, many of which have high global warming potentials (GWPs). Emissions from an unconstrained transition to high-GWP HFCs , particularly in developing countries with significant and growing demand for R/AC equipment, could nullify the significant climate benefits obtained to date through the Montreal Protocol.

Globally, R/AC equipment accounts for more than 60% of ODS emissions[4] and energy demand from R/AC systems accounts for 50% of the total buildings energy end-use in developed countries[5].A transition to refrigerants with zero/low GWP would result in direct reductions of GHG emissions from future stocks of R/AC systems, while concurrent improvements in the energy efficiency of new heating and cooling systems in public building can save considerable operational costs and produce indirect reductions of greenhouse gas (GHG) emissions.

Potential alternatives to high-GWP HFCs are often overlooked due to barriers to adoption of these alternatives such as higher capital costs, lack of information on the characteristics and performance of the alternatives themselves, or a lack of infrastructure that would support the safe handling and use of alternatives. Using governments' substantial purchasing power to promote

1 Sustainable Public Procurement Implementation Guidelines : Introducing UNEP's Approach , 2012
2 Sustainable Public Procurement Implementation Guidelines : Introducing UNEP's Approach , 2012
3 UNEP, HFC : A Critical Link in Protecting Climate and the Ozone Layer , A UNEP Synthesis Report , 2011
4 IPCC/TEAP 2005
5 A review on building energy consumption, Lombard et al, 2007

alternatives to high-GWP HFCs and stimulate demand for ozone- and climate-friendly technologies can be an effective policy instrument for overcoming these barriers. Existing national Green Public Procurement (GPP) initiatives, many of which are promoted by organizations such as OECD and UNEP, already set environmental standards for public purchases and thus provide a platform that can easily be broadened to promote safer and cleaner alternatives to high-GWP HFCs.

Through its purchasing power, the public sector can play a key role in promoting climate friendly[6] alternatives by developing procurement policies to slowly transition away from high-GWP HFCs and move towards energy-efficient and zero/low-GWP alternative technologies. Presently, alternative technologies that are ozone- and climate-friendly may face market barriers depending on application. These barriers can be technical and commercial such as potentially higher investment costs, lack of standards, lack of service capacity, as well as information asymmetry and lack of an enabling environment. The presence of such barriers prevents the large-scale commercialization of such ozone and climate friendly technologies. Government's purchasing decision from the perspective of life cycle cost benefit of the system with environmental co-benefits can stimulate the requisite demand for such ozone and climate friendly technologies.

To support the adoption of ozone- and climate-friendly technologies in various end uses in government procurement, National Ozone Units (NOUs) can play a key role to provide information to public procurement departments. Increased awareness on benefits of ozone- and climate-friendly technologies can prevent R/AC systems from being often overlooked in public procurement processes and government purchase tenders.

Typically, NOU usually does not have any link with the national procurement department, especially when it comes to procurement decision-making for R/AC systems and other products. Data on the technical merits of the alternatives or public procurement trends of ozone- and climate-friendly technologies are not readily available for procurement agencies to use in their selection and purchasing decisions. This information gap can be bridged by active participation and coordination between the procurement agencies and the NOUs.

Recognizing the lack of information and institutional linkages on procurement policies in the public sector in Asia Pacific, United Nations Environment Program (UNEP) OzonAction branch in partnership with the United States Environment Protection Agency (USEPA) organized a capacity-building workshop in the Republic of Korea (ROK) on 13th March 2015. National Ozone Officers (NOOs) from 22 countries and National Procurement Officers (NPOs) from 16 countries of South Asia, South East Asia and the Pacific[7] participated in the workshop and discussed the strategies to promote climate-friendly technologies through focused public procurement policies. The workshop was successful in initiating needed dialogue between public procurers and ozone agencies in Asia Pacific. The workshop was helpful in understanding the ozone- and climate-friendly procurement practices undertaken and proposed for the future in the region.

[6] R/AC technologies that are based on zero/low-GWP alternatives to high-GWP HFCs are referred to as climate- friendly technologies in this publication.

[7] See Figure 1. Also, a list of focal points of countries that participated in the workshop is provided in the Annex -III.

II. Methodology for developing baseline survey on ozone- and climate-friendly public procurement in Asia Pacific

One of the main objectives of the workshop was to provide a platform to exchange knowledge between NOOs and NPOs of Asia Pacific on best practices and strategies for linking GPP to potential alternatives to high-GWP HFCs.

Baseline information on ODS and ODS alternatives used in public sector and relevant institutional processes on procurement were received from the NOOs and NPOs present in the workshop through a survey questionnaire. The survey questionnaire was designed to capture the following information:

- ODS and HFC use in public sector;
- Public procurement processes;
- Focal national agencies on procurement;
- HFC-focused procurement at present or planned in future; and
- Barriers and potential opportunities for ozone- and climate-friendly technologies in public sector.

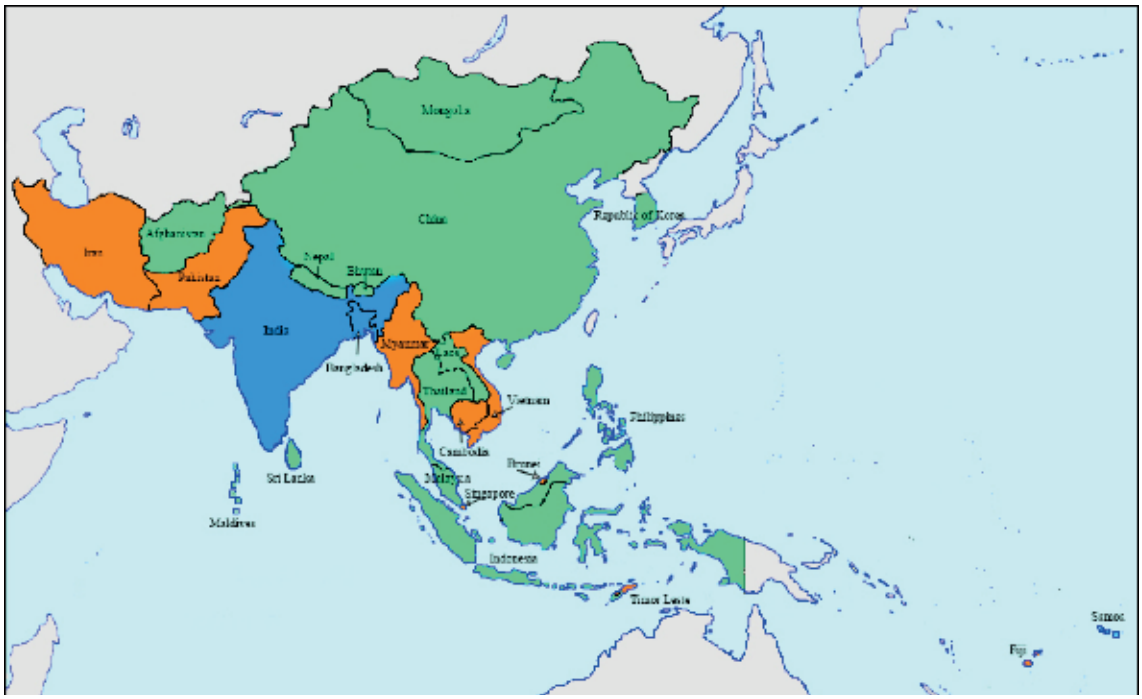
The workshop agenda and survey questionnaire were developed in consultation with UNEP's Sustainable Consumption and Production (SCP) division. UNEP SCP is leading the global SCP 10-Year Framework under which Sustainable Public Procurement (SPP) is one of the main program components. UNEP SCP division provided information on the ASEAN+3 Green Public Procurement and Eco-Labelling (GPPEL) network from which resource persons for the workshop were invited.

The survey questionnaire was shared with the invited NOOs and NPOs, 14 days before they attended the workshop. The NOOs were encouraged to meet with the invited NPOs and discuss the survey questionnaire, as this would enable them to be better prepared to provide the requested information in the survey. In many cases, this was the first contact established between NOOs and NPOs. The survey questionnaire is found in Annex-I.

During the workshop, sessions provided overviews of ozone and procurement policies. Interactive panel sessions allowed the audience to engage with presenters on procurement policy developments in Asia-Pacific, as well as on the barriers to procurement of climate-friendly alternatives. The NOOs and NPOs jointly responded to the survey questionnaire and participated in a group work exercise to consider strategies for strengthening institutional linkages and promoting climate-friendly alternatives. During the group work session, workshop participants were divided into five groups. Several representatives of the Montreal Protocol implementing agencies - UNDP, UNIDO and UNEP - supported all five groups to develop potential roadmap that would promote the purchase, use, and responsible management of ozone- and climate-friendly alternatives through public procurement. Subsequently the groups presented their recommendations/national roadmaps.

The map below shows the countries from the Asia Pacific region that participated in the ROK procurement workshop.

Figure 1: NOOs and NPOs that participated in the ROK procurement workshop



Only NOO participated

Only NPO participated

Both NOO and NPO participate

Participants in the workshop totaled 63 and included, in addition to NOOs and NPOs from the SA/SEAP region, government representatives, environmental organizations, and international organizations.

Participation	
National Ozone Officers	29
National Procurement Officers	18
International Organizations (including UNEP)	13
Government Representatives	3
Total Number of Participants	**63**

III. Results of the baseline survey on Ozone and Climate friendly public procurement in Asia Pacific

During the workshop the participants provided the baseline information related to public sector procurement practices and HFC focused initiatives at the country level. The baselines information was collected through a survey questionnaire completed by the workshop participants on public sector ODS/HFC use and procurement practices. The analysis in the following sections captures the overall indicative trend on public sector procurement practices and HFC focused policies that was reported by 22 National Ozone Officers and 16 Procurement Officers in the from the Asia Pacific region. The analysis may not include specific country situation on ozone- and climate-friendly technology use in public sector and related procurement practices, however specific examples that illustrate HFC-focused initiatives in the public procurement in Asia pacific are highlighted. Out of the total 161 information asked from the 23 countries of the region, 137 responses were received. The countries did not respond to 24 questions and for 8 questions respondents indicated that they had no information on the query. The summary of the survey questionnaire responses is provided in Annex-II.

1. Public Sector use of ODS and HFCs in Asia Pacific

The public sector in the Asia Pacific region is reported to be one of major consumers of refrigerators, air-conditioners, insulation materials, solvents and fire extinguishers. The R/AC systems are one of the main products containing ODS that are purchased and used by the public sector in buildings and vehicles. In Asia Pacific, R/AC systems in public sector are generally used in schools, hospitals, hotels, offices, transportation systems, cold storage etc.

The major ODS being used in these R/AC systems is reported to be HCFC-22 as refrigerants. The other major ODS reported were HCFC-123 for refrigeration and HCFC-141b for foam blowing agents. Some countries also mentioned the use of methyl bromide for quarantine pre-shipping use in the agriculture sector. A couple of countries reported the use of Halon in their aviation industry. Majority of the countries in the Asia Pacific region are listed as Article 5 parties under the Montreal Protocol. Therefore, all the countries reported that they are implementing HCFC phase-out activities as per their national HPMP[8] and are expecting to be compliant with the 2015 ODS control targets of MP. The region is now undertaking activities to prepare for stage-II of HCFC phase-out and build the capacity in the region to adopt and handle ozone and climate friendly technologies. The countries reported that high GWP HFCs are still considered as the commercially feasible options to HCFCs, although certain applications have seen an increase in use of zero/low GWP alternatives.

The survey reflected that for air-conditioning system for residential and commercial applications, HFC-410a is a popular replacement to HCFCs in the region. The refrigeration sector is reported

[8] HCFC phase-out Management Plan.

to use HFC-134a although there has been a trend of low GWP alternatives uptake in this sector, which would be detailed in later sections. HFC-134a is being widely used across the region for mobile air-conditioning application. The use of HFC-407c and HFC-404a is also being used for various R/AC systems across the system. The baseline survey reflected that HFC demand is growing in the region and at present is the largest commercially available alternatives.

2. Monitoring & Reporting of ODS and GHG emissions in Asia Pacific.

The ODS emissions in the region are to be tracked and monitored under the HCFC phase-out activities of the Montreal Protocol. The Asia Pacific countries report ODS production and consumption levels to the Ozone Secretariat through a systematic manner under the Article 5 data and Country Program data submission systems. The countries of the region track the trade of ODS through licensing and import quotas. Some countries have also started implementing IPIC (Informal Prior Informed Consent) web-platform for exchanging information on ODS trade between importing and exporting countries. The countries have implemented various regulation to track the production and import of ODS. There is not much information on the use of ODS in military agencies of the countries, however Cambodia's NOU reported that ODS use in all agencies including military is being tracked in Cambodia. Lao PDR reported that the ODS data of the country is integrated with the National Statistics for measuring their Millennium Development Goals (MDG-7).

With regards to GHG emissions, the NOOs of the region are not aware of the reporting systems related to GHG emissions and if any inventory and reporting of GHG emissions, in particular HFCs, is required in their respective countries. There is no specific production and import tracking being done for HFCs in the region with the exception of Thailand and Myanmar. Some countries such as Bhutan, Singapore and Vietnam, noted that GHG emissions are being reported to the UNFCCC as part of their national communications, but specific details related to HFCs is not known to the NOUs since this is under the purview of other government departments.

3. Alternatives used for high GWP HFCs in Asia Pacific

The results of the survey reflect that the region is slow with the uptake of zero and/or low GWP alternatives as they work to continue to phase out of HCFCs. Many of the responses indicated concerns with issues of technology availability, lack of standards, higher investment costs, lack of capacity to handle alternatives and awareness as potential barriers to uptake of low GWP alternatives in public sector procurement. Several noted that further technical assistance would be required to move towards zero and/or low GWP alternatives.

More than half of the countries in the region indicated the adoption of HC-600a in the domestic refrigeration sector and this shift additionally benefited consumers with improved energy efficiency. The responses to the survey mentioned that there is an increase in the adoption of ammonia (NH_3) and carbon dioxide (CO_2) based technologies for industrial and commercial refrigeration applications in some of the countries in the region. The transition to climate friendly alternatives

to high GWP HFCs in air-conditioning applications, in particular for residential, commercial and mobile applications has been very limited. A few Article 5 countries such as Philippines, Thailand and Vietnam have reported some use of HFC-32 for AC systems in the region. India and China are known to have developed HC-290 based AC systems. The transition for the foam sector in Asia Pacific has achieved successful transition to hydrocarbon (mostly cyclo-pentane) based technology, primarily due to technology conversion projects supported by the Multilateral Fund.

4. Institutional Structure for Public Procurement in Asia Pacific

All the countries in the Asia Pacific region have public procurement and related government agencies in charge of the policies and implementation of such procurements. About 70-80% of the countries in Asia Pacific region have public procurement under the purview of their respective finance ministry. For some countries their commerce and planning ministries govern public procurement.

In many cases the policy formulation and implementation of public sector-related procurement are handled by different agencies. For instance, in India the Ministry of Finance establishes policies related to public sector procurement but the implementation[9] is under the Directorate General of Supply and Disposal (DGS&D) of the Ministry of Commerce and Industry. At the state level, the state nodal agency implements the public sector-related purchases under the overall guidance of DGS&D. This decentralized approach may not be the case for all countries in the region; for some of the smaller economies it has been seen that policy setting and implementation of public sector related procurement comes under one centralized agency.

5. Green Public Procurement (GPP) policies in Asia Pacific

The public procurement policy for almost all of the countries in the region is formulated on the principles of lowest cost, basic performance standards, transparency etc. The environmental sustainability /green criteria have still not featured in the public procurement policies for most of the countries in the region. Some countries reported the consideration of social impacts of public sector purchases; for instance, Bangladesh considers aspects such as safety, health hazards etc. of their procurements.

Sri Lanka and Bhutan are considering sustainable public procurement (SPP) practices under their larger Sustainable Consumption and Production (SCP) framework. China does not have explicit GPP program, however it recommends its procuring agencies to consider "green" criteria for its purchases. Singapore public procurement policies are managed a the national level, and individual agencies determine the priority given to green procurement.

[9] Implementation means setting of technical criteria, floating of tenders, setting of supplier's pool, monitoring and evaluation etc.

Most of the countries in the region are new to the concept of GPP and do not have specific policies that target ODS and HFCs in public procurement. This is also due to the fact that ODS controls are mostly governed through licensing and import quotas. During the workshop discussions, the NOUs and procurement agencies of the region obtained information about the benefits of other countries' public procurement policies that promote zero/low GWP alternatives. For instance, in Mongolia the national policy on green development directs that at least 20 percent of public procurement shall be the procurement of environmentally friendly, effective and resource efficient goods, works and services. In 2014, the Mongolia NOU issued a letter to the Mongolian public procurement department to not use ODS in the construction of the New Ulaan Baatar International Airport. The NOU also recommended a list of ozone- and climate-friendly alternatives for ODS and encouraged the public works department to adopt such technologies in the future.

Another example is that of Thailand where there are regulations for procuring entities to procure green products. This Thai circular allows procuring entities to procure environmentally-friendly products, which are compatible with standards from the Department of Pollution Control.

6. The process for adoption of GPP policies in Asia Pacific

In order to include environmentally-friendly purchase preferences in the public sector, all the countries in the region would need to consider modifications to their public procurement policies. One of the biggest barriers to this is that green products and services generally have higher initial costs. The policymakers need more awareness and information tools on the life-cycle costs and benefits of such products in addition to the environmental impacts. The financial evaluation of public tenders need to consider the life-cycle operating costs and in order to do this, the regulations and rules would need to be modified, mostly at the national level. The countries in the region would also benefit from standardized tender evaluation tools for considering green products.

The transition to include GPP policies would require wide stakeholder consultations and agreement within the governments of the region. The local industries and SMEs would play an important role, as their market interests would have to be addressed. The NPOs of the region recommended that establishment of green standards and eco-labeling of R/AC products would assist the cause of climate- friendly procurement to a large extent. The availability of such products and qualifying environmental standards would make it easier for procuring agencies to make green purchases and frame policies around such systems. For instance, Sri Lanka is proposing to include ODS- and HFC-focused procurement in its SPP initiative for R/AC sector in addition to energy efficiency. Thailand has circulars issued to procure green-labeled products in the country and at present Thailand has energy efficiency labels for the R/AC sector. At present, Thailand is undertaking the establishment of an eco-labeling program.

7. National and Regional level collaborations for promotion of GPP policies in Asia Pacific

For most of the countries in the region GPP related consultations and discussions are generally government led. The NOUs in Asia Pacific do not have sufficient information and awareness of the national and regional level collaborations and bodies that work on GPP policies. For instance, the Green Public Procurement and Eco-labeling Network of Asia Pacific (GPPEL) is established under the 10 Year Framework Program for Sustainable Consumption and Production (10YFP SCP) of UNEP.

Some of the countries such as Malaysia had mentioned about the awareness of GPPEL, however most of the participants have not linked with their respective counterparts of GPPEL. China is aware of regional level programs that support GPP policies such as GPPEL. Long-term institutional networking between the NOUs and procurement agencies in the region would be essential for promoting ozone- and climate- friendly technologies.

IV. Opportunities for action on promoting Ozone and Climate friendly procurement in Public Sector in Asia Pacific

The Asia Pacific region, being a major market for R/AC systems, was recognized for presenting significant opportunities for adoption of ozone- and climate-friendly alternatives technologies. The public sector procurement policies that prioritize energy-efficient and climate-friendly alternatives to high GWP HFCs can be an important intervention for removal of barriers for commercialization of such alternative technologies.

It is clear that one of the most important actions for the region is to establish long-term institutional linkages between the NOOs and NPOs enabling continued collaboration and information exchange on a periodic basis. This can lead to larger regulatory framework development to address climate-friendly procurement policies in the public sector.

The region has several collaborative efforts and initiatives being undertaken and the NOOs and NPOs should continue to share information on these activities.. There is also a need to gather political will to promote green procurement, especially engaging ministries of finance/commerce to address perceptions that greener products are more expensive upfront while there is not enough awareness of their life-cycle cost benefits. Technical assistance for development of life cycle cost evaluation tools of the alternative technologies would be important to support adoption of green public procurement practices.

It is challenging for the central procurement agency to come up with policies/guidelines to ensure the alternative technologies purchased are able to meet the national standards if the alternatives are not certified. Therefore, programs such as eco-labeling, green building index; compliance-testing standards etc. are essential policy instruments that will enable public procurement to be inclusive of ozone and climate friendly R/AC technologies.

There is a need to create incentives for low-GWP products (e.g. import tax exemption, tax rebate, trade-in) to reduce costs of low GWP products and accelerate commercial uptake. There needs to be more information and outreach on benefits of public procurement of low GWP alternatives and increase in awareness among the procurement officers.

V. National Roadmap for Ozone and Climate friendly public procurement in Asia Pacific

The National Ozone Officers and Procurement Officers in the workshop for promoting climate friendly alternatives to HFCs in public procurement proposed the following for potential actions for their respective countries:

- Afghanistan would need to promote the benefits of ozone- and climate-friendly alternatives in public procurement at the bureaucratic level, as they are not well aware of life cycle cost aspects.
- Bangladesh needs to increase awareness among the government to introduce GPP through workshops and build national consensus in this regard.
- Bhutan would need to synergize GPP with its Sustainable Consumption and Production initiative under the Switch Asia project. Efforts need to be made to convince the Ministry of Finance for executive order/notification.
- Cambodia would need to inform the political leader and NOU has to work closely with procurement agencies. Since, Cambodia is not a manufacturing country therefore technology availability from countries, which it imports, would play an important role.
- The Chinese environment agencies and related associations are required to strengthen communication and coordination with Ministry of Finance. The process to recommend inclusion of Ozone & Climate friendly alternatives in the govt. policies for public procurement guidance has to be initiated. Higher costs would be a barrier towards this and appropriate measures to protect domestic markets would need to be looked into.
- In Fiji, the ozone- and climate-friendly technology transition can strategically fit under its "Green Growth Framework".
- India has opportunities to consider using ozone- and climate-friendly technology in public sector related construction projects, cold food chain and storage applications, and in automobile industry. A list of ozone- and climate-friendly products should be set for facilitating green procurement through the procurement agencies. A parallel rate contract for such list of ozone and climate friendly products could be developed by the DGS&D that encourages public agencies to consider procurement of such alternatives.
- Indonesian NOU and Procurement department would have to build public and stakeholder awareness on GPP in Indonesia.
- Iran would require increasing awareness among its Industry and Government on promotion of ozone and climate friendly alternatives in public sector purchases. There is a need to create a centralized mechanism to empower green procurement process among government bodies.

- Laos believes that larger consensus needs to be built and the Government should bring the changes by way of amendment of existing procurement rules and regulations.
- Malaysia has a Green Building Index that categorizes sustainable building through awards - silver, gold and platinum. Initiatives to integrate ozone- and climate-friendly technologies in the Green Building Index and public sector would be beneficial.
- Maldives is drafting new regulation and holding consultation for ozone and climate friendly transition in the public sector. There is need to promote such policies and strategies at the national level and synergize with international efforts.
- Mongolia suggests providing all information regarding the ozone and climate friendly technology to be provided to procuring entities when they start preparing technical specification and work task. Mongolia requires special regulations for green procurement practices. There is a need for certified or eco-labeled goods and services and bid evaluation tools to promote sustainability.
- Nepal envisions that the adoption of climate friendly and energy efficient alternatives can help its Hotel industry to promote green tourism. Public sector interventions for procurement of such alternatives can have significant positive impact.
- Philippines proposes that the policy-making body of the Montreal Protocol should issue a policy statement encouraging the incorporation of ozone- and climate-friendly procurement in the public sector to every member country. It also suggested that it is necessary for UNEP to come up with procurement guidelines. This would give Philippines a strong basis for recommending to the Government revisions in the Philippines procurement process to include ozone- and climate- friendly technology preferences.
- Samoa's NOU believes that it must work closely with the procurement division in Samoa to promote ozone and climate friendly alternatives.
- Singapore considers that the there is an opportunity to include ozone and climate friendly technologies in the BCA Green Mark Scheme which was launched in 2005 as an initiative to drive the construction/ building industry towards more environment-friendly buildings.
- Sri Lanka will take up the proposal of including ozone and climate friendly technologies in the SPP initiative in the country. Also regulatory backing for GPP policies needs to be mobilized.
- Thailand needs to increase the cooperation between the various agencies on this opportunity. The eco-labeling initiative for R/AC systems in the country can be synergized for ozone, climate and energy use criteria.

ANNEX-I: Questionnaire on National ODS/ HFC Uses and Public Procurement Policies

ODS/HFC Markets in Your Country

6. If known, what are the main ODS and HFC uses/purchases in the public sector (e.g., refrigeration and air-conditioning in buildings, air-conditioning in motor vehicles)?
7. Does the government require tracking and reporting of ozone-depleting or other greenhouse gases or emissions by national agencies and/or the military?
8. What alternatives are currently available in your country to reduce emissions of high-GWP HFCs where feasible? These may include alternative chemicals, technologies, or practices.

Public Procurement in Your Country

1. Where does responsibility for public procurement lie in your government? Is there a central office or agency that leads on public procurement? If known, please provide key contact name and information.
2. Does your country have regulations or other programs/policies in place to guide sustainable public procurement? If national regulations exist, do they include specific requirements that target ODS or high-GWP HFCs, products containing these substances, or practices to avoid emissions?
3. What is the process of modifying existing procurement requirements (if any)? How would these changes get communicated internally (across national government agencies) and externally (to vendors/contractors)?
4. Are there public procurement associations or working groups that discuss, review, influence, or manage implementation of public procurement regulations/policies?
5. Is your country a participant in any regional/international programs that promote or develop policies for sustainable public procurement (e.g., ASEAN +3[10] Green Public Procurement and Ecolabelling (GPPEL) Working Group)? If yes, do they specifically target avoiding ODSs and high-GWP HFCs where feasible through green purchasing?
6. What are some key opportunities for promoting ozone- and climate-friendly alternatives in your country's public procurement process? What are potential barriers?

[10] The Association of Southeast Asian Nations (ASEAN)+3 region is composed of all ASEAN countries (i.e., Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam) plus China, Japan, and South Korea.

ANNEX-II: Summary of Survey

	Primary ODS & HFC uses/purchases in Public Sector	Tracking and Reporting of ODS & GHG Emissions	Alternatives to reduce High GWP HFCs' Emissions	Central Office/ Agency responsible for Public Procurement	National Regulations/ Programs for Sustainable Public Procurement (in particular targeting ODS /HFC)	Process for Modification of Current Procurement	Public Procurement Associations/ Working Groups for Implementation	Participation in Regional/ International Programs for Sustainable Public Procurement Development
Afghanistan	ODS and HFC used in Public Sector; Buildings and Vehicles	No Tracking system	Introduction of HC-600a & HC-290	Public Procurement Unit (PPU) of Ministry of Finance (MoF)	Only Financial aspect , no GPP	-	No	No
Bangladesh	ODS (HCFC-22 , HCFC-123) and HFCs (HFC-134a , HCFC-410a) used in Public Sector ; Refrigerators , small and central ACs	ODS Import Controls ; No information for GHG	NH_3 & CO_2 used in ice-cream factories, cold storages.	Central Procurement Technical Unit (CPTU) , Ministry of Planning	Only Financial aspect , some indication regarding social health, safety, social benefits, no GPP	National Rules and Regulations amendment	Yes	No information
Bhutan	ODS and HFC used in Public Sector; Buildings and Vehicles	ODS Import Control & IPIC ; UNFCCC for GHG	HC and NH_3	Public Procurement Policy Division (PPPD), Ministry of Finance (MoF).	Only Financial aspect	Approval from Ministry of Finance (MoF), through amendment & issue of notifications	Yes	Switch Asia, Sustainable Consumption & Production

	Primary ODS & HFC uses/purchases in Public Sector	Tracking and Reporting of ODS & GHG Emissions	Alternatives to reduce High GWP HFCs' Emissions	Central Office/ Agency responsible for Public Procurement	National Regulations/ Programs for Sustainable Public Procurement (in particular targeting ODS /HFC)	Process for Modification of Current Procurement	Public Procurement Associations/ Working Groups for Implementation	Participation in Regional/ International Programs for Sustainable Public Procurement Development
Brunei Darussalam	ODS and HFCs used in Public Sector ; AC and MAC	ODS Import Controls ; No information for GHG	-	-	-	-	-	-
Cambodia	ODS (HCFC-22 , HCFC-123) and HFCs (134a, R-410a) used in Public Sector ; Refrigeration , vehicles , hotels , office buildings	ODS Import Controls ; No information for GHG	HC-600	Department of Finance in each Ministry with the committee from the Ministry of Economy and Finance	Only Financial aspect	National Rules and Regulations amendment	Auditors recommend	No information
China	ODS (HCFC-22 , HCFC-141b, HCFC- 142b, HCFC-123)and HFCs (HFC-407a, HFC- 404a) used in Public Sector ; Refrigeration, AC in buildings, MAC, Solvent	-	HC, NH_3, CO_2, H_2O	Ministry of Finance	Recommendatory policies for GPP	National Rules and Regulations amendment	-	Yes
Fiji	ODS(HCFC-22 , HCFC-406) and HFCs (HFC-134A, HFC-404A, HFC-410a)used in Public Sector	ODS Import Controls ; No information for GHG	HC in Domestic Refrigeration	Ministry of Finance, Fiji Procurement Office	Only Financial aspect.	National Rules and Regulations amendment	No Public Procurement Associations; comments from relevant agencies sought	No

	Primary ODS & HFC uses/purchases in Public Sector	Tracking and Reporting of ODS & GHG Emissions	Alternatives to reduce High GWP HFCs' Emissions	Central Office/ Agency responsible for Public Procurement	National Regulations/ Programs for Sustainable Public Procurement (in particular targeting ODS /HFC)	Process for Modification of Current Procurement	Public Procurement Associations/ Working Groups for Implementation	Participation in Regional/ International Programs for Sustainable Public Procurement Development
India	-	-	-	Director General Supply and Disposal (DGS&D), Ministry of Commerce & Industry, New Dehi dg@dgsnd.gov.in	Only Financial aspect.	Procurement Manual Amendment	No	No
Indonesia	ODS and HFCs used in Public Sector buildings ,MAC Methyl Bromide in QPS , Halon in aviation , military , petroleum and museum	ODS import controls	CO_2, NH_3	Policy Agency for Procurement of Goods/Services (LKPP)	Only Financial aspect.	Revised regulation and Presidential Decree	Yes	No information
Iran	ODS(HCFC-22, HCFC-141b) and HFCs(HFC-134a) used in Public Sector	ODS Import Controls ; No information for GHG	HC-600a for refrigeration	Ministry of Industry, Mine and Trade	-	Not enough information	No	No information
Lao PDR	ODS (HCFC-22) and HFCs (HFC-134a, HFC-410a) used in Public Sector	ODS Import Controls ; No information for GHG	-	Ministry of Finance (MOF), The Procurement Monitoring Office (PrMO)	Only Financial aspect.	National Rules and Regulations amendment	No	No information
Malaysia	ODS(HCFC-22 , HCFC-123) and HFCs (HFC-134a , HFC-410a) used in Public Sector ; Refrigerators , AC , chillers MAC)	No Tracking system	HC, NH_3, District cooling- absorption chillers	Ministry of Finance	Only Financial aspect.	Stakeholder Consultations and Rules amendment	Consultation with stakeholders	ASEAN + 3 Eco-labelling.

	Primary ODS & HFC uses/purchases in Public Sector	Tracking and Reporting of ODS & GHG Emissions	Alternatives to reduce High GWP HFCs' Emissions	Central Office/ Agency responsible for Public Procurement	National Regulations/ Programs for Sustainable Public Procurement (in particular targeting ODS /HFC)	Process for Modification of Current Procurement	Public Procurement Associations/ Working Groups for Implementation	Participation in Regional/ International Programs for Sustainable Public Procurement Development
Maldives	ODS and HFCs used in Public Sector	ODS import controls and HFC tracking	Only HFC is available	Public Procurement Division , Ministry of Finance and Treasury	Policies in place to guide sustainable public procurement but no specific requirement that target ODS or high GWP	Line Ministry Consultations and Rules amendment	No	No
Mongolia	ODS (HCFC-22) and HFCs used in Public Sector ; Refrigeration , AC , XPS Foams , MAC	ODS Import Controls ; No information for GHG	-	The Government Procurement Agency of Mongolia	National policy on Green development requires at least 20% of public procurement should be green	Stakeholder Consultations and Rules amendment	Yes	No information
Myanmar	ODS and HFCs used in Public Sector ; Refrigeration & AC , MACs	No Tracking system	-	Ministry of Commerce	Only Financial aspect.	-	Yes	Yes
Nepal	ODS (HCFC-22 , HCFC-123) and HFCs used in Public Sector ; Refrigerators , AC, MACs	ODS import controls ; Tracking of GHG under another agency	-	Individual public organization as needed; Public Procurement Monitoring Office (PPMO)	Only Financial aspect , green component up to the procuring agency	Stakeholder Consultations and Rules amendment	No	No information

	Primary ODS & HFC uses/purchases in Public Sector	Tracking and Reporting of ODS & GHG Emissions	Alternatives to reduce High GWP HFCs' Emissions	Central Office/ Agency responsible for Public Procurement	National Regulations/ Programs for Sustainable Public Procurement (in particular targeting ODS /HFC)	Process for Modification of Current Procurement	Public Procurement Associations/ Working Groups for Implementation	Participation in Regional/ International Programs for Sustainable Public Procurement Development
Philippines	ODS (HCFC-22, HCFC-123, HCFC-141B, HCFC BLENDS (e.g. HCFC Polycold refrigerant, HCFC-412a) and HFCs (e.g. HFC-134a,HFC-404a, HFC-407c, HFC-404a, HFC-507, HFC-508, HFC-410a) in Public Sector	ODS Import Controls and Tracking	NH_3; HFC-32 for domestic air conditioning, HC, Methyl formate, , cyclopentane in domestic refrigerators and panel manufacturing, Water blown technology in commercial refrigeration	Head of the Procuring Entity	Only Financial aspect	Through bids backed by regulations	Yes	Eco Labelling Program (wastewater and air pollution)
Samoa	ODS (HCFC-22) and HFCs (HFC-134a , HFC-404 , HFC-410a) used in Public Sector ; Refrigerators , AC , MACs	ODS data use reported to NOU	NH_3 for Industrial Applications, HC-600 a	Samoa Ministry of Finance	Only Financial aspect	Stakeholder Consultations and Rules amendment	Yes	No
Singapore	ODS (HCFC-22) and HFCs (HFC-134a , HFC-410a) used in Public Sector ; RAC and MAC	ODS Import Control & IPIC ; UNFCCC for GHG	HC	The Ministry of Finance (MoF)	Only Financial aspect , green component up to the procuring agency	N/A	-	-
Sri Lanka	ODS and HFCs used in Public Sector	ODS Import Controls ; No information for GHG	HC	Department of Public Finance, General Treasury	SPP policies being drafted	Include alternative for High GWP in the SPP policy draft	Yes	No

	Primary ODS & HFC uses/purchases in Public Sector	Tracking and Reporting of ODS & GHG Emissions	Alternatives to reduce High GWP HFCs' Emissions	Central Office/ Agency responsible for Public Procurement	National Regulations/ Programs for Sustainable Public Procurement (in particular targeting ODS /HFC)	Process for Modification of Current Procurement	Public Procurement Associations/ Working Groups for Implementation	Participation in Regional/ International Programs for Sustainable Public Procurement Development
Thailand	ODS and HFCs used in Public Sector ; RAC and MAC	ODS Import Controls and information on HFC distribution	HFC-32; Cyclopentane technology in the production of domestic refrigerators	public procurement management, the Comptroller General's Department	Only Financial aspect , green component up to the procuring agency by purchasing green labeled products	Stakeholder Consultations	Yes	ASEAN+3 Green Public Procurement
Timor-Leste	ODS (HCFC-22) and HFCs (HFC-134a , HFC-410a) used in Public Sector ; RAC, MAC	ODS Import Controls ; No information for GHG	-	-	-	-	-	-
Vietnam	Inadequate information for purchases in public sector regarding ODS and HFC	ODS Import Control & IPIC ; UNFCCC for GHG	HFC-32, HC-600a; Cyclo-pentane	Ministry of Planning and Investment	Not enough information	-	No	No information

ANNEX-III: List of Ozone and Procurement Officers participated in the survey

NATIONAL OZONE OFFICERS

S.no	Title	Name	Organization	Country
1	Mr.	Jawid Saboori	National Environmental Protection Agency (NEPA)	Afghanistan
2	Ms.	Peldon Tshering	National Environment Commission	Bhutan
3	Ms	Xiaoyan Li	Ministry of Environmental Protection (MEP)	China
4	Ms.	Sun Fangjuan	Ministry of Environmental Protection(MEP)	China
5	Mr.	Xu Chen	Ministry of Environmental Protection(MEP)	China
6	Mr.	Mehdi Bakhshizadeh	Environmental Research Center, Dept of Environment	Iran
7	Mr.	Jinho Cho	Korea Specialty Chemical Industry Association	South Korea
8	Ms.	Jiyoon Park	Korea Specialty Chemical Industry Association	South Korea
9	Ms.	Miruza Mohamed	Ministry of Environment and Energy	Maldives
10	Mr.	Mauman Abdul Rasheed	Ministry of Environment and Energy	Maldives
11	Prof.	Tsohio Adiyasuren	Ministry of Nature, Environment and Tourism	Mongolia
12	Mr.	Shailesh Kumar Jha	Ministry of Industry, Commerce and Supply	Nepal
13	Mr.	Iftikar Gilani	International Cooperation Wing , Government of Pakistan	Pakistan
14	Mr.	Mr. M.M.M. Senevirathna	Ministry of Environment	Sri Lanka
15	Mr.	Mohammad Fakhrurazi Salleh	Ministry of Development	Brunei
16	Mr.	Pak Sokharavuth	Ministry of Environment	Cambodia
17	Mr	Engkos Kosasih	Ministry of Environment he Republic of Indonesia	Indonesia
18	Mr.	Thevarack Phonekeo	Ministry of Natural Resources and Environment (MONRE)	Lao PDR
19	Ms.	Shafizah binti Jabar Basha	Ministry of Natural Resources and Environment (NRE)	Malaysia
20	Ms.	Aminah Ali	Ministry of Natural Resources and Environment (NRE)	Malaysia
21	Mr.	Ye Swe		Myanmar
22	Mr	Onofre P. Escota	Department of Environment and Natural Resources	Philippines
23	Ms.	Kai Yun Lim	National Environment Agency	Singapore
24	Ms.	Tan Hwee	National Environment Agency	Singapore
25	Ms.	Natawan Sukchai	Ministry of Industry	Thailand
26	Ms	Somsri Suwanjaras	Department of Industrial Works	Thailand

27	Mr.	Mario Francisco Correia Ximenes	Secretario de Estado do Meio Ambiente	Timor Leste
28	Mr.	Luong Duc Khoa	Ministry of Natural resources and Environment	Viet Nam
29	Mr.	Ilaitia Finau	Department of Environment	Fiji

PROCUREMENT OFFICERS

S.no	Title	Name	Organization	Country
1	Mr.	Ghulam Yahya Taher	Directorate Strategy, Policy and Planning , Ministry of Commerce	Afghanistan
2	Mr.	Mohammad Rupam Anwar	IMED, Ministry of Planning	Bangladesh
3	Mr.	Tshewang Gyeltshen	Ministry of Finance	Bhutan
4	Mr.	Zhang He	Shenzhen Municipal Authority	China
5	Mr.	Siddharth	Ministry of Commerce and Industry	India
6	Mr.	Djanuar Arifin	Ministry of Environment	Indonesia
7	Mr.	Young-ju Kim	Ministry of Environment	Korea
8	Mr.	Phimpha PHOMMAVONG	Ministry of Finance	Lao PDR
9	Mr.	Zulkifli bin Abdul Rashad	JKR Headquarters	Malaysia
10	Mr.	Mr. Ahmed Mujuthaba	Ministry of Finance and Treasury	Maldives
11	Ms.	Fathimath Nashwa Ahmed	Ministry of Environment and Energy	Maldives
12	Ms.	Nomingerel Davaadorj	Procurement agency of Mongolia	Mongolia
13	Mr.	Gyan Bahadur Adhikari		Nepal
14	Mr.	Liaina Mafaufau	Ministry of Natural Resources & Environment	Samoa
15	Mr.	Joel U. Baun	POD	Philippines
16	Mr.	G.A.A. Priyantha	Ministry of Finance & Planning,	Sri Lanka
17	Ms.	Panida Pitayathontap	The Comptrollers General Dept	Thailand
18	Mr.	Thanachoke Rungthipanon	The Comptrollers General Dept	Thailand

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This document is a joint publication between UNEP OzonAction and USEPA. It is an information source intended to assist relevant decision makers on the potential of green public procurement policies to promote ozone and climate friendly technology alternatives to HCFCs. It summarizes the current public sector procurement practices for ozone and climate friendly technologies in Asia Pacific, captured through a survey and consultation workshop with National Ozone Units and Public Procurement agencies of the region. It describes the methodology that was used for the survey and compiles the survey responses. This scoping study tries to present the trends in the Asia Pacific region related to Ozone Depleting Substances (ODS) & Hydrofluorocarbon (HFC) use in the public sector, green procurement policy status, institutional framework and the various challenges of ozone and climate-friendly public procurement. It also summarizes the possible next steps that were proposed by the countries in the region to promote ozone and climate-friendly technologies in their public sector procurement policies.