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Latvia's Participation in International Emissions Trading *Options Study*

ECSSD Sustainable Development Department and ENVCF Carbon Finance Unit

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Options Study

A STUDY BY

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DISCLAIMER

This report was prepared by the World Bank at the request of the Government of Latvia, with funding from the World Bank's Carbon Finance Unit and the Country Unit. It is intended to help the Government of Latvia make an informed decision about a strategic approach to assigned amount unit (AAU) trading, including a pipeline of possible projects, programs and other activities implemented under a Green Investment Scheme.

Separately from this report, the World Bank is engaged in various aspects of carbon finance in its efforts to help governments address the United Nations Framework Convention on Climate Change and the Kyoto Protocol to that Convention. The World Bank's engagement in carbon finance currently consists of acting as trustee for the administration of eight funds with funding pledges from governments and companies in OECD countries of nearly US\$1.93 billion (for more details see www.carbonfinance.org) which are used to purchase project-based greenhouse gas emission reductions in developing countries and countries with economies in transition.

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ABBREVIATIONS AND ACRONYMS

AAU	Assigned Amount Unit
BAT	Best Available Techniques
CDM	Clean Development Mechanism
CEE	Central and Eastern Europe
CER	Certified Emission Reduction
CH ₄	Methane
CHP	Combined Heat and Power
CITL	Community Independent Transaction Log
CO ₂	Carbon Dioxide
COP/MOP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
DH	District Heating
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECCP	European Climate Change Program
EIA	Environmental Impact Assessment
EE	Energy Efficiency
EIT	Economy in Transition
eq	Equivalent
ERU	Emission Reduction Unit
ESCO	Energy Saving Company
EU	European Union
EUA	EU Emission Allowance
EU ETS	EU Emissions Trading Scheme
FIELD	Foundation for International Environmental Law and Development
FM	Fund Manager
GB	Governing Board
GDP	Gross Domestic Product
Gg	Giga-gram
GHG	Greenhouse Gas
GIS	Green Investment Scheme
GOL	Government of Latvia
HFC	Hydrofluorocarbons
ICJ	International Court of Justice
IET	International Emissions Trading
IFI	International Financial Institution
ITL	International Transaction Log
JI	Joint Implementation
KfW	Kreditanstalt Für Wiederaufbau
KP	Kyoto Protocol
kt	Kiloton
kWe	Kilowatt of electricity
LATAK	Latvian National Accreditation Bureau
LEGMA	Latvian Environmental, Geological and Meteorological Agency
LEIF	Latvian Environmental Investment Fund
LEPF	Latvian Environmental Protection Fund
LGISF	Latvian Green Investment Scheme Fund
LULUCF	Land Use, Land Use Change and Forestry

LVL	Latvian Lat
MOE	Ministry of the Environment
MOF	Ministry of Finance
MJ	Mega-joule
Mt	Million tons
N ₂ O	Nitrous Oxide
NAP	National Allocation Plan
NEFCO	Nordic Environmental Finance Corporation
NGO	Non-governmental Organization
NMVO	Non-methane Volatile Compounds
NO _x	Nitrogen Oxide
NPV	Net Present Value
NR	National Registry
OECD	Organization for Economic Co-operation and Development
PFC	Perfluorocarbons
PJ	Peta-joule
PM	Particulate Matter
PRG	Partial Risk Guarantee
PV	Photovoltaic
R&D	Research and Development
RMU	Removal Unit
RES	Renewable Energy Source
SES	State Environment Service
SF ₆	Sulfur Hexafluoride
SME	Small-medium Size Enterprise
TA	Technical Assistance
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value Added Tax
VOCs	Volatile Organic Compounds
WTO	World Trade Organization
WWTP	Wastewater Treatment Plant

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EXECUTIVE SUMMARY

Latvia and implementation of the Kyoto Protocol

Latvia has an unprecedented opportunity to capture several hundred million Euros of additional public revenues by selling units of national greenhouse gas emissions quotas, or “Assigned Amount Units” (AAUs), under the terms of International Emissions Trading stipulated in Article 17 of the Kyoto Protocol. These revenues can increase energy security, efficiency and environmental quality in Latvia in line with national development priorities. To take advantage of this opportunity Latvia has to meet its Kyoto commitments, meet internationally agreed eligibility requirements, and ensure that revenues are used for environmental purposes agreed with the buyers – the practice called “greening”.

Latvia’s preparations to meet eligibility criteria are well advanced and the country is preparing to begin trading as one of the first market participants. Latvia’s Assigned Amount is calculated, inventories are up to date, the national registry is in place, and all reporting requirements are completed. In April 2006, the Cabinet of Ministers adopted a concept of participation in International Emissions Trading under Article 17 of the Kyoto Protocol and earmarked 40 million units of Assigned Amount Units (AAUs) for potential sale during the first Kyoto commitment period, 5-10 million of these AAUs are scheduled to be sold through pilot transactions during 2007-08. Depending on the price, sales of 40 million AAUs could generate US\$200-500 million of incremental revenues to the state budget over a period of six to seven years, an annual increase of 0.5-1.2 percent.

Emissions trading will not constrain Latvia’s potential for economic growth. Even under the pessimistic scenarios of an energy–intense economy, Latvia will have surplus AAUs to trade. In fact, the AAU surplus may continue after 2012 even with the tighter emission targets envisaged by the European Commission. Furthermore, using AAU revenues to reduce emissions of greenhouse gasses during the Kyoto commitment period can partly replenish marketable AAU assets.

The AAU market and Latvia’s market position

Latvia will be a relatively small seller in a buyer-dominated market. Although the AAU market does not yet exist, most experts agree that global supply will significantly exceed demand, making international emissions trading a buyers’ market and enabling buyers to set conditions for sales. In fact many potential buyers have already indicated that their AAU purchases will depend on revenues being used to support environmental projects and programs. All buyers, except small ones driven by speculation, will expect transparency, accountability, and efficiency in the use of AAU revenues.

Potential global demand for AAUs is estimated to be between 400 and 2,000 MtCO₂eq during the Kyoto commitment period. Currently this is the best expert estimate of a global

compliance gap of OECD countries after domestic measures are implemented and project-based credits are purchased. The *potential global availability of surplus AAUs* during the first commitment period is projected to be at least three times higher (between 6,400 and 6,900 MtCO₂eq, three-fourths of it in Russia and Ukraine). Not all available surplus AAUs will enter the market, which means that real excess supply may dwindle, if for example large sellers are unwilling or unable to sell their surpluses, or if some buyers, such as Canada, continue to abstain from purchasing Kyoto “commodities.”

Due to the uncertainties and risks in the incipient phase of the market, most early buyers are likely to be governments. Demand for AAUs from European enterprises will remain weak until 2012 because AAUs cannot be traded under European Union Emissions Trading Scheme (EU ETS). Nevertheless, sovereign buyers and sellers can also authorize private legal entities’ participation in AAU trading. Private entities from other countries (mainly Japan) have already indicated their interest. Private buyers may be willing to agree on more flexible transaction structures, and absorb more reputational risks in exchange for price considerations. Therefore, while pilot transactions may be targeted mainly at sovereign buyers, transaction structures may be designed to allow for authorized private buyers.

Latvia can be a reliable fast-track provider of credibly greened AAUs with low risk and low transaction costs. Since Latvia will be one of the smaller sellers on the AAU market, it will be a price taker and will have limited opportunity to influence market rules. However, from the buyers’ perspective Latvia has a number of comparative strengths:

- Low risk of non-delivery of AAUs: robust surplus estimates, advanced in compliance with Kyoto eligibility, effective implementation of EU climate change policy, including EU Emissions Trading Scheme (EU ETS);
- Low reputational risk: strong political commitment to Green Investment Scheme (GIS) approach in AAU trade, commitment to transparency and accountability, high international credibility; and
- Flexible and adaptable to buyer expectations: relatively small country, sophisticated and effective institutions of public and private sector.

These advantages can compensate for relatively small absolute size of tradable surplus and for limited opportunities for using AAU revenues for additional reduction of greenhouse gas (GHG) emissions.

What is a Green Investment Scheme?

Green Investment Schemes have more flexibility than Joint Implementation projects. The Green Investment Scheme (GIS) is a mechanism established by the selling country to assure buyers that proceeds from AAU trades will finance bilaterally agreed environmental projects and programs. The GIS has no legal basis in either the United Nations Framework Convention on Climate Change (UNFCCC) or the Kyoto Protocol. Its design depends entirely on bilateral agreements between sellers and buyers, thus there is no widely accepted definition or model of “greening.” This means that Latvia has a range of options for greening that can be embedded in AAU purchase agreements. The GIS can be an alternate mechanism to Joint Implementation or a complement through topping-up Emission Reduction Units (ERUs).

How should AAU transactions be structured?

Maximize value and minimize risk. Principles guiding transaction design include maximizing the sales value to Latvia while minimizing the risk; and ensuring transparency, accountability, and efficiency of AAU transactions. The three main negotiating points for a pilot transaction are payment schedule, product differentiation, and pricing.

Scheduling transactions and payments. Given the uncertainties of the emerging AAU market, prompt execution of a pilot transaction would allow Latvia to gain early-mover benefits and establish transaction standards in line with country priorities. Subsequent transactions can be adjusted to evolving market conditions; in particular to trading strategies of large sellers and buyers. The most common transaction type during a pilot phase will be a forward contract with future delivery of greened AAUs and negotiated payments schedule. During the Kyoto commitment period spot transactions will also be possible—payments can be made after Latvia transfers AAUs to the buyer's national registry, and after greening programs are implemented.

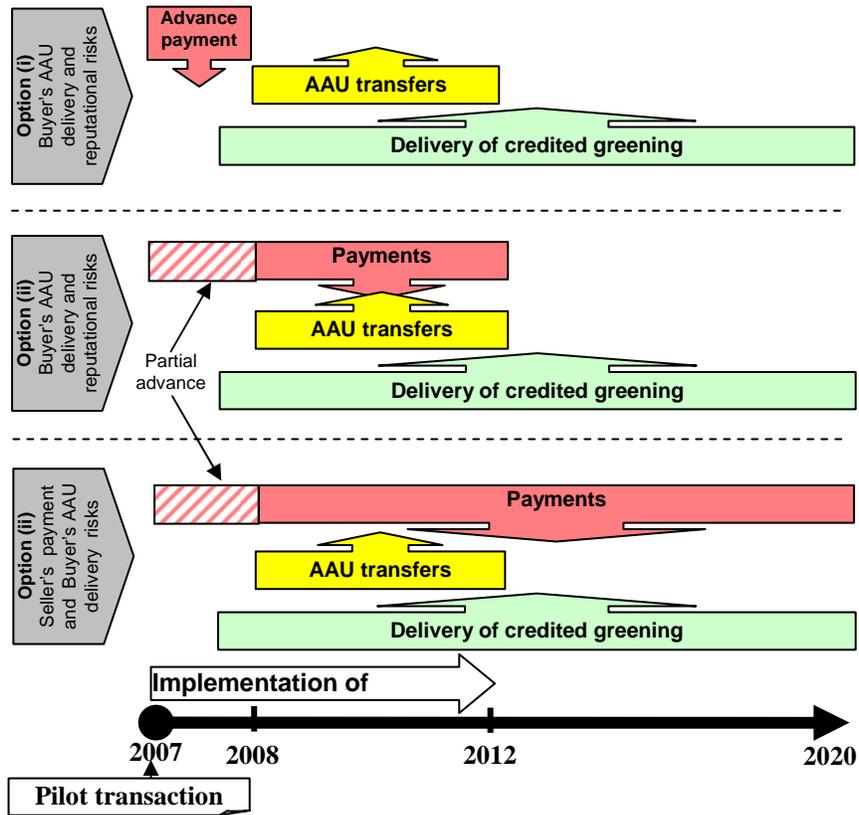
Sequencing payments, delivery, and implementation of greening projects or programs will affect greened AAU trading. AAUs can be issued and transferred only during the commitment period 2008-12 (in practice, the accounting period stretches to 2013).¹ Sellers and buyers can however develop flexible bilateral agreements on the schedule of emission reductions and payments. Options are illustrated in Figure 1. Forward transactions with advance payment shifts most risk to buyers, while spot transactions with payment upon delivery of AAUs and greening leave sellers with higher risks.²

The most prudent approach to early transactions would likely be a forward contract stipulating that Latvia delivers AAUs in installments, buyers pay upon delivery and when Latvia reaches agreed milestones in implementing greening programs but before all greening projects yield full results. Buyers might agree to a small advance payment prior to AAU delivery.

¹ The schedule for AAU transfer is specified in the Kyoto Protocol.

² In this report, the advance payment denotes those made by AAU buyers to Latvia in advance of the delivery of greened AAUs in accordance with the AAU sale/purchase contract, while the upfront payment is used to denote payments made by the GIS Fund to the project sponsor in advance of the generation of environmental benefits by the project in accordance with the financing contract.

Figure 1: Generic options for scheduling buyers' payments for AAUs versus delivery of AAUs and delivery of greening measures



Options for transaction products (“green” AAUs). Buyers’ preferences may differ among greening projects and/or programs, which gives Latvia the opportunity to customize combinations of greening products and pricing structures for AAU transactions to meet buyer needs. Transaction products could include: (a) GHG emissions reductions; (b) emission reductions of local pollutants; (c) adaptation and mitigation to climate change; (d) climate policy development; (e) GIS management including monitoring and verifying GIS environmental effects; and (f) technical assistance (TA) for project sponsors to prepare and present “green” bankable project proposals. Subsequent transactions could introduce more diverse options. From the buyers’ viewpoint, the less credible the “greening” the higher the reputational risk, hence the lower the price potentially offered. Therefore, although buyers do not have a common view on what is a credible greening it is a typical expectation that greening results should be at least monitored, verified and publicly reported.

Options for trading mechanisms. Latvia may have two main mechanisms to select buyers and set prices—auctioning, and bilateral negotiations. Politically, auction is more acceptable, plus more efficient and transparent (hence accountable) to reveal buyers’ willingness pay for AAUs. Some auction models are more beneficial to sellers, others to buyers, but in this instance, potential buyers are few and unfamiliar with the AAU market and greening commitments. Therefore initially, Latvia may find bilateral negotiations with selected sovereign government(s) more efficient. Also, there is a hybrid approach—Latvia could issue an invitation for expression of interest and submit an indicative price to several buyers; then buyers who meet minimum

criteria could be invited to negotiate. To decrease transaction costs, Latvia could organize roundtable negotiations for the “greening” terms, and one-to-one negotiations for commercial terms (including price and payment schedules).

Options for pricing. Price advantages of Latvia’s AAUs potentially include low risk of delivery, high credibility of greening, low cost of customizing transactions to buyers’ preferences, and lower sovereign risk compared with other AAU suppliers. Successful pilot transactions could establish a “Latvian AAU brand,” which could generate a price premium for subsequent transactions. An important factor will be finding an adequate benchmark for the base AAU price. This could be done by relating AAUs to the price of Kyoto commodities with mature markets such as Emission Reduction Units (ERUs) or Certified Emission Reductions CERs (their future vintages). It would be a mistake to link AAU prices to that of EU Emissions Allowances (EUAs) because at least until 2012 AAUs cannot be converted to EUAs and traded on the EU ETS. Buyers can expect AAU prices to be higher or lower than the benchmark depending on factors such as risk of delivery of the Kyoto compliance instrument, reputational risk to buyers, project implementation risk, and the size of demand. Table 1 shows factors that are likely to be taken into account by market participants when comparing the AAU price to ERU prices.

Table 1. Factors influencing perception of AAU price against ERU benchmark

Factor	Pressure on AAU price versus ERU	Description	Risk assessment
Kyoto Regulatory Risk	↑	Host Country regulatory risk; methodology risk; determination risk; monitoring and verification risk, issuance of ERUs/AAUs risk, etc.	AAU risk seems to be equal or lower than ERUs because AAUs are valid for compliance immediately if accepted by ITL (no international boards, validation, determination, etc.) BUT eligibility criteria to transfer AAUs are more difficult than for JI Track 2.
Reputational Risk	↓	Risk that reputation of one of the carbon trade parties may be damaged because transaction revenues are not used to support environmental projects and programs; or that transparency, accountability, and efficiency in the use of the revenues is impaired. Risk of negative social or environmental impacts, etc.	AAU risk seems to be higher than that of ERUs from JI Track 2 because there are no legal requirements for independent validation and verification of emission reductions from projects. Risk can be similar to JI Track 1.
Project Risk	↑	Host Country risk, risk of delayed construction; Risk of underperformance after completion of construction;	AAUs risk seems lower than that of ERUs because validity of AAUs for compliance by parties is not dependent on performance of specific projects.
Demand	↓	The Linking Directive (Directive 2004/101/EC) allows operators of the EU ETS installations to use CERs and ERUs for compliance, while AAUs are excluded.	Global demand for AAUs will be lower than for ERUs, unless sovereign buyers and Japanese private buyers prefer AAUs, which is unlikely.

Legal and regulatory considerations

AAUs definition under Latvian law. Legal ambiguity concerning how Latvian law defines AAUs is unlikely to prevent trading or creating a GIS if AAU treatment under international, European, and Latvian laws is adequate.

Options for purchase agreements. Latvia can enter into two types of AAU purchase agreements: (a) an inter-governmental treaty under public international law, and (b) a contract under private international law. Private international law is the only option for AAU purchase agreements if buyers are foreign companies. Both options could be used with state buyers. Inter-governmental agreements tend to have a strong status once ratified and in force, whereas under private international agreements, parties select the applicable law and then check how such a contract could be enforced against the other party. Inter-governmental treaties require a lengthy complicated approval process often involving national parliaments. However, with due legal delegation, provisions for approval procedures under private and public international law agreements could be similar in Latvia. Latvia should keep both options open for selection in consultation with potential government buyers.

Conclusions of the legal analysis of AAU trading:

- AAUs belong to the state of Latvia and can be sold under the general rules in existing and planned legislation;
- Under existing legislation, the Cabinet of Ministers could conclude AAU purchase agreements both under public and private law;
- Under existing legislation the Parliament (*Saeima*) must approve AAU purchase agreements that the Cabinet of Ministers has concluded under public international law; and
- Purchase agreements concluded under private law do not need Parliamentary approval, but *Saeima* may choose to discuss them.

Options for legislative framework. The Cabinet of Ministers has adopted a schedule of legal reforms to enable participation in International Emissions Trading. The Ministry of the Environment was appointed to lead preparatory activities. In theory, Latvia would have three options for introducing the legislative framework to participate in international emissions trading, and to implement a GIS: (a) amending the Law on the Kyoto Protocol as foreseen by the Concept Note on Emissions Trading; (b) amending the Law on Pollution and other existing laws; or (c) creating a new law for international emissions trading and a Green Investment Scheme. According to national legal experts enacting a new law seems the most pragmatic and elegant option considering the Latvian national legal system.

Alternatively, particularly for a pilot transaction, Latvia may choose ad-hoc parliamentary ratification of individual transactions with sovereign governments after the agreements are signed by the Ministers authorized by the Cabinet of Ministers, or before—by ratifying series of framework agreements with interested buyers. This legislative path may not be shorter than a framework law and risks fragmenting the legal basis of AAU trade and higher transaction costs. Additionally, this may limit competition to only the buyers whose framework agreements are ratified.

Emissions trading decision-making authority within the Latvian national administration must be defined in law. The new legislation on international emissions trading in Latvia would need the following:

- Authorisation for the Ministry of the Environment and the Ministry of Finance to carry out preparations for AAU transactions, including participation in negotiations and drafting of AAU purchase agreements;
- Authorisation for the Cabinet of Ministers to make decisions on each sale of AAUs, including price and specific conditions;
- Authorisation for the Cabinet of Ministers to approve and authorise relevant ministers to sign AAU purchase agreements; and
- Authorisation for the Cabinet of Ministers and the Ministry of the Environment to implement the GIS.

Earmarking. Most AAU buyers require proceeds to be earmarked to the GIS and existing Latvian budget law allows this. An explicit provision for earmarking could be included in emissions trading law. Existing legislation would permit a special budget account and sub-accounts in the Treasury from which expenditures could be executed and disbursed to project owners. Carry-over of unspent end-of-year balances to the next fiscal year is also legally feasible.

Limitations on use of AAU proceeds. EU state aid rules may limit opportunities for using AAU revenues to reduce emissions in enterprises, in particular those participating in EU Emissions Trading Scheme. The European Commission will likely consider transfer of AAUs or AAU revenues to enterprises participating in EU ETS to be state aid incompatible with the common market because such a transfer would affect competition and trade within the European Community. Latvia has the option to prepare a GIS window for EU ETS participants as a state aid scheme, but transaction costs would be high, and approval by the European Commission would be lengthy.

The prudent option is to earmark AAU revenues to projects and programs that do not benefit Latvian EU ETS participants. Public support may...

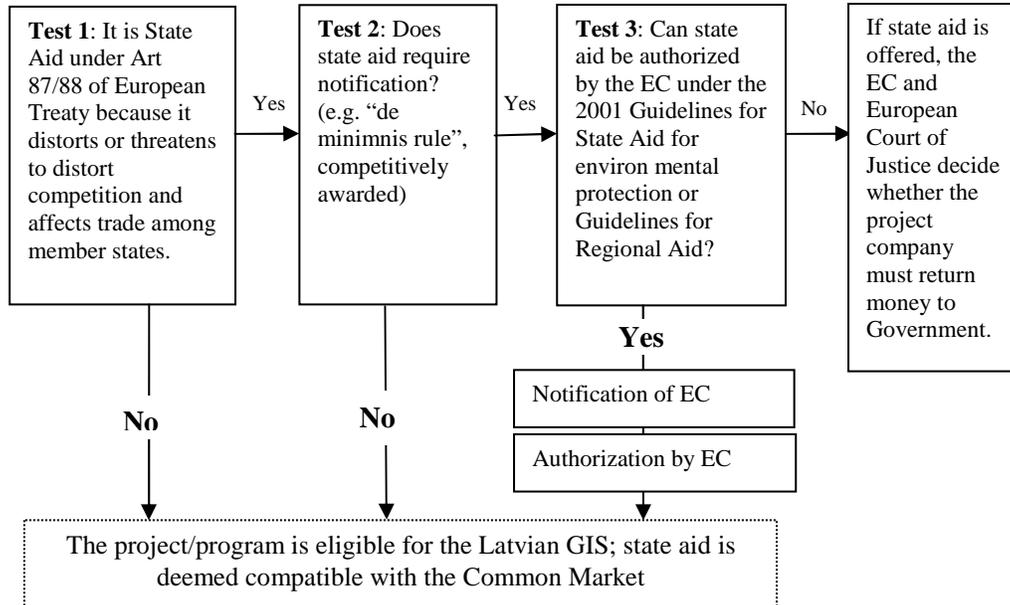
- ...not constitute state aid as defined under Article 87 of the European Treaty if the support would benefit, for example: (a) the budget entities (e.g., schools, hospitals, public buildings) providing public services; (b) utilities (irrespective of ownership) that provide services of general economic interest under state orders; or (c) the general public, such as private households;
- ...constitute state aid that is compatible with the Common Market and does not require commission notification, e.g. awarded through competitive process open—without prejudice—to all firms from EU Member States; and
- ...constitute state aid, which may be incompatible with the Common Market, thus would require notification and approval of the European Commission. In this case the Ministry of the Environment would need to design the state aid scheme to minimize adverse effects on competition and trade within the European community using relevant EC guidelines.

State aid may be provided in any sector to any enterprises under the *de minimis* rule, meaning state aid that does not exceed 100,000 Euro per beneficiary in a three-year period. This level of aid does not require notification of the European Commission, but it is likely insufficient for some projects.

The GIS will most likely require Latvia to prepare several state aid schemes for different sectors using a combination of the options above. The Government may want to discuss with the European Commission how regional aid guidelines and the reformed state aid rules for

environmental protection apply to an AAU trade. In this way problems can be identified prior to officially establishing the GIS. The generic algorithm for selecting state aid schemes is illustrated below.

Figure 2: Do potential GIS projects/programs comply with EU state aid rules?



Greening opportunities and potential project pipelines

Economically viable options to further reduce GHGs are limited in Latvia. Based on realistic but conservative assumptions economic potential for further GHG reductions is estimated at 7–8.6 MtCO₂eq during the 10-year crediting period. This is less than one-quarter of 40 million AAUs potentially available for sale. The potential for GHG emissions reduction is hampered by the relatively low carbon intensity of the Latvian power sector—reliance on hydro and renewable energy sources means that the CO₂eq emission factor for grid electricity is 2.3 times lower than in EU15 countries. The EU Emissions Trading Scheme further reduces potential to use AAU revenues to achieve GHG reduction because of state aid constraints.

Options for greening. As a result, Latvian GIS may need to include a relatively high share of greening measures that do not generate immediate and easily measurable GHG reductions. They can be divided into three broad categories: (a) greening measures crucial to GIS implementation (e.g., capacity building for GIS management, monitoring, and verification); (b) greening measures that generate local environmental benefits while mitigating climate change; and (c) greening measures that prevent future increases of GHG emissions or facilitate adaptation to climate change.

Rough cost assessments of proposed greening programs, and analysis of available public funding convincingly illustrate significant potential demand for funding under the GIS. It appears likely that potential AAU revenues can be absorbed by the portfolio of priority environmental programs, for which baseline funding is inadequate. Some 18 greening programs have been tentatively identified as options for the Latvian GIS (Table 2). Programs consist of multiple projects and other activities, and total greening potential can be expanded to match available funding.

Table 2: Identified greening programs for the Latvian GIS

#	Name of Program	Typical Project Owners	Typical Project Cost	Expected GIS Funding as % of project cost
1	Biomass heat-only boilers	Private and/or municipal companies	MLVL 0.4 (M€ 0.57)	30
2	Efficient use of biomass and geothermal energy in households	Householders	LVL 4,000 – 7,000 (€ 6,000 – 10,000)	50
3	Combined heat and power	Private and/or municipal companies	MLVL 1.70 (M€ 2.40)	30
4	Small hydro power and wind power	Private companies	MLVL 1.6-7.8 (M€ 2.3-10.6)	50-75***
5	Solar energy	Municipalities / Government / Private apartment buildings	LVL 60,000 (€ 90,000)	50
6	Production and promotion of biofuels*	Private companies	MLVL 0.04 (M€ 0.06)	30
7	Biogas utilization	Large farms / Private or municipal companies	MLVL 1.0 (M€ 1.4)	60
8	Energy efficiency in energy generation	Private or municipal companies	MLVL 0.25 (M€ 0.35)	25
9	District heating rehabilitation	Municipalities / Municipal companies	MLVL 0.8 (M€ 1.1)	50
10	Energy efficiency in buildings	Municipalities Government / Private and/or municipal companies Private apartment buildings	LVL 510,000 (€ 700,000)	30
11	Environmentally friendly transportation system	Municipalities / Government	**	*
12	Capacity building for GIS management	Government / Private companies	**	100
13	Monitoring and verification of GIS	Government / Private companies	**	50-100
14	Capacity for climate policy development and management	Government	**	**
15	Emission reductions of local pollutants (VOCs)	Private companies	**	**
16	Climate change adaptation	Government / Research institutes Municipalities / Private companies	MLVL 2-4; (€M 2.7-5.4)	**
17	R&D and promotion of low carbon, BAT and clean production	Government, Research institutes Municipalities Private companies	**	**
18	Building awareness and capacity	Government, Research institutes Municipalities Private companies	**	**

* Transport sector currently excluded; major investments would be required

** To be defined when GIS is further elaborated in Latvia

*** Depending on forthcoming feed-in tariff

Eligible projects should meet all the following criteria:

- Satisfy buyers' needs for legitimate “greening,” demonstrate significant “greening” potential and technical feasibility;

- Meet legal requirements (e.g., clarify ownership, confirm eligibility for public support, comply with Latvian and EU laws);
- Confirm economic justification (or cost-effective emissions reduction);
- Demonstrate financial feasibility with carbon revenue and some additionality (e.g., GIS revenues should address barriers that otherwise would prevent or delay project implementation; should not crowd out committed finance);
- Demonstrate potential for rapid implementation—not later than 2010 (e.g., competent project sponsor/developer identified, permits/licenses/power purchase agreements obtainable);
- Demonstrate verifiable environmental or other benefits during the crediting period agreed with AAU buyers; and
- Support wider sustainable development objectives of Latvia.

Institutional set-up for GIS management and supervision

Two possible models for GIS: project-by-project or programmatic. Most GIS programs will comprise many smaller projects, making it unreasonable for buyers to control sub-project risk. Therefore Latvia could propose “wholesale” greening programs backed by a credible and accountable national mechanism to “retail” AAU revenues to multiple project owners. This study reviewed Latvian institutions and confirmed good governance and strong capacity to implement programmatic GIS. Latvia can offer robust GIS implemented by competent national institutions that require only minor and targeted institutional strengthening.

Transparent, efficient and accountable AAU expenditure management. Under GIS, Latvia should comply with good international practice. An overall framework for the design of the GIS management mechanism can be based on World Bank requirements for financial intermediaries and OECD Council Recommendation on Public Environmental Expenditures Management. Accountability requires a clear separation of responsibilities among governing and management institutions, and independent verification of results to avoid conflict of interest.

Overall supervision and fiduciary control. A governing body could be a newly established public agency supervising GIS on behalf of Government, or it could be a Governing Board within the existing state-owned corporate entity—for example the Latvian Environmental Investment Fund (LEIF). Expectations are that the Governing Board could include key stakeholders such as NGOs and buyers’ representatives. However, if buyers are members of a governing board they become co-responsible for GIS performance, which would expose them to legal and reputational risk. An alternative might be that buyers participate as advisers and observers. Independent financial audit will be needed.

Managing operations. The day-to-day management of GIS expenditures could be performed by a private entity or a public financial agency appointed by the Government of Latvia under a performance-based contract. The Operational Manual for a management contract should specify rules and procedures for project cycle, appraisal criteria, procurement guidelines, monitoring, reporting, and financial management, including audit requirements. National stakeholders often propose LEIF as the strongest candidate for an executive management agency. The LEIF would need additional staff and resources to carry out GIS fund management—perhaps outsourcing some management functions.

GIS environmental integrity

Monitoring and reporting. Legally binding methodologies for monitoring and reporting of emissions (in particular of GHGs) should be developed for small installations and for energy efficiency measures. Methodologies should be easy to apply, based mainly on estimates rather than measurements. Monitoring, reporting, and verification protocols can be developed in concert with the Operational Manual, integral to GIS design, and AAU funds could be used for this.

Independent verification. Latvia could appoint an independent entity—public or private, domestic or foreign—to conduct monitoring and verification of greening results. The Latvian administrative system of environmental management is well-designed, effective, and ensures sufficient communication with the public. Project-level verification of environmental effects can be divided between public and private entities. Verification can be conducted partly by existing regional environmental enforcement and control agencies of the State Environmental Service (SES). However SES inspectors may not be prepared to verify greenhouse gas emissions because this falls outside their core business. Private companies accredited in Latvia to verify CO₂ emissions reduction in EU ETS installations could also verify under the GIS, in particular for large projects. For smaller projects, private GHG emissions verification may be costly, and a simpler procedure can be applied.

Typical steps in GIS environmental monitoring, verification, and reporting may be as follows:

1. Project owners would monitor and report on data according to the methodology stipulated in GIS regulations, periodically submitting a project environmental report to national verification entities;
2. Verification entities would verify monitoring results included in the report and submit it to the LEIF (or other GIS management agencies);
3. The GIS management agency would collect reports in an electronic database that would be publicly available, and prepare an annual environmental performance report that would provide aggregated data on emission reductions and environmental benefits achieved by sub-projects;
4. An independent entity would perform annual review of the environmental performance report; and
5. The reviewed environmental performance report would be submitted to the Latvian Ministry of the Environment, which could apply another internal quality assurance procedure before submitting the report to the buyers and making it public, to comply with AAU transaction “greening” obligations.

Financing sub-projects under the GIS

Options for financing sub-projects. Selecting financing instruments for GIS projects should be pragmatic but should include incentives to implement the projects quickly, encourage efficient, result-oriented behaviors, and avoid distortionary economic effects, particularly fiscal and interest rate distortions.

Equity and soft loans. Equity is not always what project developers need most. Equity is often more expensive than debt and in many sectors identified for GIS there are already many private green investment funds on the market competing for good projects. Soft loans are also

discouraged. Commercial credit is widely available in Latvia at competitive interest rates and there is a risk that subsidized public lending would crowd out more abundant private debt financing.

Performance-based grants paid to projects upon delivery of verified milestones and results would generally perform best by the above criteria. Ideally grants should be disbursed in proportion to projects' environmental and social benefits. Early disbursements, e.g., for project preparation or construction milestones, may be considered for projects that would otherwise not have materialized. Projects can be eligible for GIS payments irrespective of how the underlying capital costs are financed but it always makes sense to require evidence of project-sponsor commitment through partial equity. Financing initial investments with commercial debt could enhance financial discipline and implementation efficiency among inexperienced project owners because commercial banks would assist in financial and technical project structuring and monitoring.

The GIS payment structure could leverage substantial additional financing for underlying capital investments by attracting commercial credit against future GIS cash flow and requiring an equity contribution from project sponsors. The "bankability" would increase if future GIS payment is secured through an escrow arrangement. Also works contractors and equipment suppliers would likely provide vendor credit until completion, especially if payments could be transferred directly to contractors (or even creditors) against their invoices.

Risk, risk sharing, and risk mitigation

Broad risk categories are (a) AAU materialization risk; (b) GIS implementation risk; and (c) project implementation risk.

The projected AAU materialization risk is low. The Government of Latvia is likely to be one of the first major entrants to the AAU market. The country is on track with meeting eligibility criteria. The government's commitment is clearly demonstrated. It can be additionally mitigated by through a design of AAU purchase agreement and a design of a GIS itself.

The GIS implementation risk could create serious reputational risk for all sovereign buyers and may undermine their willingness to pay market price or to purchase at all. The AAU transaction revenues are likely to hinge on the implementation of green investment activities. Risks related to GIS implementation rest entirely on sellers' institutional and regulatory capacity and political commitment. Governance, the most critical element of GIS, can be strengthened by separating governing and management and by multi-stakeholder representation in the governing body (possibly including buyers). GIS management agency risk can be mitigated by keeping it operationally independent, accountable for greening results, and predictable to project owners. Project selection and other functional mandates for the GIS management agency must be clearly defined by statute, legislation, regulation, or operational guidelines/manuals according to international best practice as described in this report.

Transparent financial management—accounting, administrative and audit procedures—must be in place for accountability, freedom from political interference, and the feasibility of underlying greening. In particular, the GIS management agency must have transparent fund disbursement procedures because interrupted cash flow could disrupt ongoing implementation of greening activities, which could lead to the loss and suspension of eligibility to claim buyer payments. Reliable, objective, and independent monitoring and verification of greening activities

and benefits will reassure AAU buyers and enable them to justify AAU purchases. A verification entity, separate from GIS management would mitigate conflict of interest.

Project implementation risk. Other risks relate to financing greening activities. Generically, project risks are of two types—sovereign/political risk and commercial risk. Sovereign/political risk is considered low in Latvia, strengthened by EU membership, currency convertibility and transfer, low risk of confiscation, expropriation, or civil disturbances. In addition, Latvian institutional integrity seems solid, as is political commitment to credibility of the entire GIS arrangement. Commercial risks would typically include market, financial, construction, technical, operational, legal, and compliance risks, plus credit risks of sponsors and guarantors. Even public project sponsors face commercial risks. Mitigating these risks will first require that each greening investment is supported by a proven set of technologies, and second, that the design of GIS management agency financial products includes incentives for project sponsors such as performance-based payments—the flow of revenue to a project would depend on the project sponsor’s continued ability to produce environmental benefits included in a financing contract.

If project sponsors fail to implement the agreed scope of greening activities, the AAU contract may eventually be suspended and then cancelled, and the country may lose its expected revenues. This risk can be mitigated by linking AAU purchase agreements to programs (project portfolios) rather than individual projects, so that non-performing projects could be eliminated and replaced. Preliminary assessment of potential local project sponsors and local commercial financial institutions concludes that they have adequate capacity to manage the project risks. Local banks are used to lending to small- and medium-size companies and appear to be comfortable accepting borrowers’ project implementation risk.

Most risks described above can be mitigated through the design of AAU purchase agreements and the design of critical aspects of the GIS itself, as analyzed in this report. However, the contracted parties or other institutions involved in the underlying projects may be unable to assume certain risks or could absorb them only at a cost that would make the transaction uneconomic. For such cases, Latvia could consider third-party risk mitigation (or credit enhancement) instruments to ensure AAU trading scheme feasibility. Project sponsors and commercial lenders may request third-party risk mitigation to cover GIS implementation risk when the financial feasibility of the underlying greening project depends heavily on GIS management agency cash flow. Third-party guarantees can cover AAU buyers (private and /or public depending on the guarantee eligibility criteria) against risks associated with advance payment to Latvia on AAU contracts.

Indicative designs and implementation arrangements for Latvian GIS

The implementation of the Green Investment Scheme in Latvia may involve the following steps.

- ***Component 1: Establish legal framework and the GIS Fund management*** (e.g. on the basis of the Latvian Environmental Investment Fund—LEIF). Under this component, the LEIF (and possibly other cooperating private and public agencies) would establish an operationally independent, transparent, and efficient governing and management mechanism for the GIS.
- ***Component 2: Establish mechanism for monitoring and verification of GIS environmental results*** (on the basis of the State Environmental Service and private

accredited verification companies). Under this component, a credible national system for monitoring and verification of environmental outcomes of the GIS will be established.

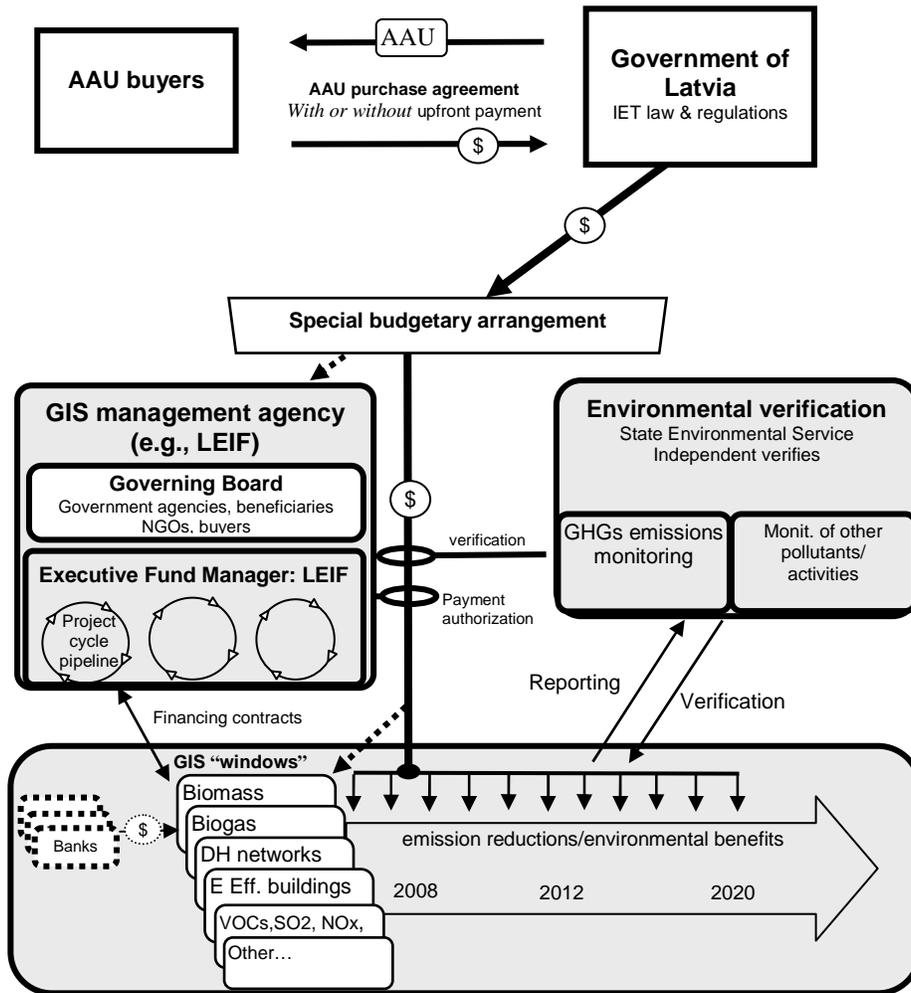
- **Component 3: Develop pipelines of projects and programs** (technical assistance for project identification and preparation, including training for eligible beneficiaries and their financing agents—commercial banks, treasury unit responsible for financing municipalities, etc.).
- **Component 4: Develop information and marketing** for potential buyers, project sponsors and other stakeholders.

Conceptually, the GIS project cycle could be as follows:

1. Eligible project owner apply for financing through a nationally established mechanism managed, for example by the LEIF;
2. The LEIF appraises project proposals using procedures and criteria developed during AAU pilot project negotiations and embedded in the Operational Manual;
3. Following the LEIF appraisal and the Governing Board approval, the LEIF concludes financing contracts with project owners. Financing contracts include inter alia pollutants covered, payments, payment schedule, payment conditions (performance indicators), and a protocol for monitoring and verifying outcomes;
4. After implementing projects and commencing operation, a project owner monitors and reports on emissions to the LEIF through verification agencies, according to the protocol embedded in financing contract;
5. Upon verification of results, the project owner would invoice the LEIF, which would submit a disbursement request to the Ministry of Finance (MOF) directly or through the Ministry of the Environment (MOE);
6. The MOF would disburse from the special Treasury account to the LEIF, or directly to project owner, or to commercial bank escrow accounts for direct payment to debt service or contractors.

This procedure continues in cycles during the agreed period to be approved with the buyers. Beneficiary enterprises must be able to finance up-front capital investments internally and/or through borrowing.

Figure 3: Generic GIS structure and financial flows



1. LATVIA AND THE KYOTO PROTOCOL

1.1. KYOTO PROTOCOL AND FLEXIBLE MECHANISMS

1.1 In 1992 during the 'Earth Summit' in Rio de Janeiro, more than 180 countries adopted the United Nations Framework Convention on Climate Change (UNFCCC) setting an international legal framework for joint GHG emissions reduction. The Kyoto Protocol to the UNFCCC entered into force on 16 February 2005 and introduced more powerful and legally binding measures. As many as 39 industrialized countries and economies in transition (listed in Annex B to the Kyoto Protocol) adopted legally binding targets to reduce their GHG emissions on an average by 5.2 percent between 2008 and 2012, relative to emissions in 1990, with individual industrialized country targets varying. There are no emissions targets for developing countries.

1.2 A core element of the Kyoto Protocol is the provision for international mechanisms that allow flexibility in achieving GHG emissions reduction for the 2008-2012. A group of instruments, consisting of Joint Implementation - JI (Article 6 of the Kyoto Protocol), Clean Development Mechanism - CDM (Article 12 of the Kyoto Protocol), and International Emissions Trading - IET (Article 17 of the Kyoto Protocol) allow transfers of emission reduction efforts between countries, in order to minimize the overall costs of reaching Kyoto targets. JI is used for project-based trading of GHG emission reduction credits between industrialized nations. CDM is a similar instrument, but based on agreements between industrialized and developing nations. IET relies not on the transfer of emission reduction credits, but rather on the trading of the units of national emission "quotas", called assigned amount units (AAUs) between the eligible Annex "B" Parties to the Kyoto Protocol.

1.2. IMPLEMENTATION OF THE KYOTO PROTOCOL IN LATVIA

1.3 Latvia signed the UNFCCC in 1992. The Parliament of the Republic of Latvia (the Saeima) ratified the Convention in 1995 and the Kyoto Protocol in 2002. In accordance with the Kyoto Protocol, Latvia has to reduce the total emissions of CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ by 8% in the period 2008 – 2012, compared to the emissions level in 1990. In fact by 2004 total GHG emissions expressed in CO₂ equivalents were reduced much more – by 58 percent, although begun to slight increase afterwards (see Box 1).

1.4 The GHG emissions are likely to grow, although more slowly than Latvia's GDP. Ministry of the Environment simulations, even under the most pessimistic scenarios for carbon intensity and fossil fuel use, show that Latvia will have a significant surplus AAUs during the first commitment period.³

³ Latvian experts are debating the option of building a new coal-fired power plant to decrease the dependence of the power system on imports. The Ministry of the Environment this potential new source of CO₂ emissions has been taken into account in estimating the size of tradable surplus of Assigned Amount Units.

Box 1: Latvia's emissions trends—main GHGs and carbon intensity

Based on 2004 inventory, total GHG emissions expressed in CO₂ equivalents amounted to 10,746 Gg (i.e., 10.7 Mt), which accounted for 42 percent of the 1990 emissions. This figure excludes LULUCF sector.

Most (69 percent) of all GHGs emitted from Latvia in 2004 were *carbon dioxide (CO₂)*. The main CO₂ emission source in Latvia in 2004 was energy sector with 72% of the total GHG and 96% of total CO₂ emissions. Of this, energy industries accounted for 28% of total CO₂ emissions, manufacturing industries and construction – 14%, other energy sectors – 17%, and transport – 37%. Industrial processes accounted for 3%, solvent and other product use – 0.65%. Net CO₂ removals from the land-use, land-use change and forestry sector were 3.2 Mt CO₂ in 2004.

By 2004, emissions of the second most significant greenhouse gas, *methane (CH₄)* have been reduced by 47.5%, compared to the 1990 level. The main sources include municipal waste dumpsites and enteric fermentation of livestock. Other significant CH₄ emission sources are losses from natural gas programs and burning biomass in the household sector.

Total *N₂O emissions* have decreased by 62%, compared to the 1990 level. The main N₂O emission source is agricultural land, contributing 74% in 2004. Other sources include transport, combustion of biomass in the sectors of household, trade and other, as well as waste and wastewater handling. *HFCs and SF₆* emissions have increased considerably, but their absolute share is small.

Despite significant reduction of GHG emissions, Latvia remains a relatively carbon-intensive economy, compared to the rest of EU. In 2003, GHG emissions amounted to 1,753 tons in CO₂eq per million Euro of GDP, compared to the average of 536 tons in the EU15 and average 607 tons in the EU-25⁴.

The latest document, "*Climate Change Mitigation Program for 2005-2010*," was adopted by the Cabinet of Ministers on 6 April 2005, and it aims to ensure that, beginning in 2008, total GHG emissions do not exceed 92% of the 1990 level. The Program identifies the following climate change policy objectives : (a) increase the share of renewable energy sources in the energy balance; (b) increase efficient and rational use of energy resources; (c) develop environmentally-friendly transport system; (d) promote implementation of best available techniques (BAT), environmentally-friendly technologies and cleaner production; (e) promote implementation of environmentally-sound agricultural methods that reduce direct GHG emissions; (f) increase CO₂ removals in forestry; (g) establish an up-to-date municipal waste management system, ensuring collection of biogas in municipal waste landfills; (h) participate in EU emissions allowance trading scheme and the Kyoto Protocol flexible mechanisms; and (i) promote implementation of environmental management systems, and the inclusion of environmental considerations in consumer decisions.

Source: GHG Inventory 2004, Climate Change Mitigation Program 2005-2010

1.5 On 12 April 2006 the Cabinet of Ministers approved participation in International Emissions Trading under Article 17 of the Kyoto Protocol as proposed by the Ministry of the Environment. The Cabinet designated the Ministry of the Environment to coordinate preparations and earmarked 40 million units of Assigned Amount Units (AAUs) for potential sale during the first Kyoto commitment period. The Cabinet also decided that the Latvian AAUs would be "greened," i.e., that AAU revenues would be used to finance environmental expenditures.

1.6 Depending on the price, sales of 40 million AAUs could generate US\$200-500 million of *incremental revenues* to the state budget over a period of six to seven years, an annual increase of 0.5-1.2 percent

⁴ Draft report of 2005 "Achievement of Kyoto Targets in the Community" by the European Commission.

1.3. LATVIA AND EU CLIMATE POLICY

1.7 As a member state of the European Union, Latvia has an opportunity to participate in development of European climate policy and an obligation to implement it. The European Union (EU) has played a key role in the development of the UNFCCC and the Kyoto Protocol, and is also taking serious steps to address its own GHG emissions. The European Climate Change Program (ECCP) was launched in March 2000 to identify policies to help the EU reach its target under the Kyoto Protocol, i.e., by 2012 to reduce GHG emissions from the EU as a whole by 8 percent in 2008-2012, compared to the 1990 levels. Some “old” Member States (EU15) assumed different legally binding targets under the burden sharing agreement. The EU’s 8 percent target only refers to the “old” 15 Member States, and this has not changed after enlargement. The EU’s burden sharing agreement does not apply to the ten new Member States. They are bound to their individual targets, as set out in the Kyoto Protocol both under the Kyoto Protocol’s non-compliance procedures and under EU law. The ten new EU Member States have their own Kyoto targets of between –6 percent and –8 percent.

1.8 European Climate Change Program has triggered the development and implementation of a number of new policy measures adopted by European Union to mitigate climate change. The second European Climate Change Program (ECCP II) was launched in October 2005. The second ECCP will provide a new framework for EU climate change policy, with a scope and perspective beyond 2012. New areas of focus are transport, aviation, innovative technologies for geological carbon capture and storage, and adaptation.

1.9 One EU measure that is potentially most relevant to the international emissions trading is the EU Emissions Trading Scheme (EU ETS), which started its operation on 1 January 2005 based on Directive 2003/87/EC. The scheme covers over 12,000 installations in the 25 Member States, responsible for approximately 50 percent of the EU’s total CO₂ emissions for the first phase of the EU ETS (2005-2007). The second phase of the EU ETS overlaps with the first Kyoto commitment period (2008-2012). The participants of the EU ETS are operators of large combustion installations in energy consuming sectors, including power, heating, oil refining, building materials (cement, bricks, ceramics, glass), pulp and paper, and ferrous metals. The EU ETS participants receive allocation of European Union Emissions Allowances (EUAs) based on common allocation criteria (e.g., historical emissions, benchmarks, and various correction factors), specified by the European Commission in the guidelines for preparation of National Allocation Plans. These allowances can be traded between operators of installations participating in EU ETS.

1.10 Latvia’s eligible enterprises have been trading on EU ETS market for several months already. Allocation of EUAs for 2005 was 4.6 Mt whereas verified emissions were 2.85 Mt. The European Commission has approved country’s National Allocation Plan for the first phase of EU ETS, and Latvian registry is successfully connected to the Community Independent Transaction Log (CITL). As of June the draft NAP for the second phase (2008-2012) was undergoing public consultation.

1.11 The EU ETS has limited relevance to international emissions trading because it is a separate market. The EU ETS has been linked to CDM and JI mechanisms through Directive 2004/101/EC, which is commonly known as the “Linking Directive.” The Linking Directive makes it possible to use Certified Emission Reductions (CERs) from CDM projects and Emission Reduction Units (ERUs) from JI projects for compliance under the EU ETS. AAUs transferred under Article 17 cannot, however, be used for compliance under the EU ETS.

1.4. LATVIA'S ELIGIBILITY FOR INTERNATIONAL EMISSIONS TRADING

1.12 As of July 2006 Latvia was well on its way to meeting eligibility criteria to participate in international emissions trading—one of the first countries in CEE.

1.13 According to the modalities, rules and guidelines for emissions trading adopted by the COP/MOP decision 11/CMP.1 in November 2005 (FCCC/KP/CMP/2005/8/Add.3), an Annex I country must meet the following eligibility criteria to participate in international emissions trading under Article 17 of the Kyoto Protocol:

- Be a Party to the Kyoto Protocol;
- Calculate its Assigned Amount;
- Have in place a national system for estimating greenhouse gas emissions and removals by sinks;
- Have in place a National GHG Registry;
- Submit annually the most recent required inventory; and
- Submit supplementary information on the assigned amount and make adjustments and recalculations, if required.

1.14 Under the Kyoto emissions trading rules, the same eligibility criteria apply to both buyers and sellers. In other words, for the International Transaction Log (ITL)⁵ to accept the transfer of AAs from Latvia's National Registry (NR) to the buyer's NR, the buyer state must fulfill all the same eligibility criteria.

Ratification of the Kyoto Protocol

1.15 Latvia ratified the Kyoto Protocol in 2002.

Calculation of Assigned Amount

1.16 In the initial report⁶, Annex I Parties are required to submit to the UNFCCC Secretariat emissions data necessary to formally establish their Assigned Amounts and calculate their commitment period reserves. This process involves a number of choices, including choosing the base year for certain GHG and tree height value for forests.

1.17 According to the Latvian Ministry of the Environment, the ministry in cooperation with the Latvian Environmental, Geological and Meteorological Agency (LEGMA) submitted a draft initial report, including determination of Latvia's Assigned Amount to the European Commission in mid-June 2006.

1.18 In addition, it is decided that Latvia will utilize carbon sinks under Articles 3.3. and 3.4. of the Kyoto Protocol. The outcome of this decision and possible other issues related to land use, land use change and forestry (LULUCF) need yet to be analyzed as far as Latvia's eligibility is concerned.

⁵ This is a system that will be performing automatic checks of each transfer of emissions allowances under the Kyoto Protocol. See paragraph 38 of the *Decision on modalities for accounting assigned amounts*.

⁶ The initial report is based on the decision on the Modalities for accounting assigned amounts under Article 7, paragraph 4, of the Kyoto Protocol and decision 13/CMP.1. The deadline for submitting the initial report under the Kyoto Protocol is 1 January 2007.

National Inventory System

1.19 In the initial report, Annex I Parties are required to demonstrate that they have in place a national system for estimating greenhouse gas emissions and removals by sinks, in accordance with Article 5 of the Kyoto Protocol and decision 19/CMP.1. The national system includes all institutional, legal and procedural arrangements for estimating anthropogenic greenhouse gas emissions and sinks, including information on reporting and archiving.

1.20 According to the information received from the Latvian Environmental, Geological and Meteorological Agency (LEGMA), the Latvian national system has already been established. The LEGMA, under the surveillance of Ministry of the Environment, is responsible for annual inventories, in cooperation with the Central Statistical Bureau of Latvia, Ministry of Transport, Ministry of Agriculture, State Land Service, private institutions and sectoral experts.

National Registry

1.21 In order to be eligible for emissions trading, Annex I Parties must also have in place National Registries, i.e., electronic databases to track the creation and transfers of ERUs, AAUs, CERs and RMUs. However, the Registries can be used only for IET once the International Transaction Log has been installed. The International Transaction Log will be operated by the UNFCCC Secretariat and it should be ready to connect to the National Registries by April 2007.

1.22 Latvia has already created its National Registry for both the Kyoto Protocol and the EU ETS. The LEGMA acts as the registry operator, and the Registry software has been licensed by the UK Department for Environment, Food and Rural Affairs (DEFRA). According to the LEGMA, the registry should be fully compatible with the Kyoto Protocol requirements and able to perform all actions foreseen by the Protocol.

National communications and other reporting requirements

1.23 Under the UNFCCC, Annex I Parties must submit to the Secretariat an annual inventory report about their greenhouse gas emissions. They must also submit every five years a national communication. Article 7 of the Kyoto Protocol imposes additional reporting requirements on Annex I Parties and requires supplementary information to demonstrate compliance with the Protocol. The annual GHG inventories have been submitted regularly since 1995, and a complete series of data from 1990 covering all sectors is available (data on emissions from solvent and other product use are available from 1995 onwards.)

1.24 Latvia has submitted its Fourth National Communication.

1.25 Latvia has also submitted to the UNFCCC Secretariat a report required by Article 3.2 of the Kyoto Protocol on demonstrable progress in achieving its commitments. The report of the Republic of Latvia on Demonstrable Progress under the Kyoto Protocol has been prepared by Ministry of the Environment and published in English in 2006.

1.26 Latvia submitted a draft initial report to the European Commission on time in mid-June 2006.

Review process for the initial reporting

1.27 The Kyoto COP/MOP-1 adopted in December 2005 a decision on procedures for reviewing the initial reports and the annual greenhouse gas inventories.⁷ Accordingly, the initial reports will be reviewed in conjunction with the annual greenhouse gas inventories submitted in 2006 (i.e., 2004 inventory).

1.28 The initial report should be submitted to the UNFCCC Secretariat by 1 January 2007. The initial report demonstrates that all national institutions and systems are in place to account for GHG emissions, to estimate the Assigned Amount and the commitment period reserve, and to report information relating to activities aimed at meeting the Kyoto Protocol's quantified emission reduction obligations.

1.29 At the first instance, eligibility to participate in emissions trading is determined by the enforcement branch of the Compliance Committee based on an initial report that each Annex I country must submit to the UNFCCC Secretariat by 1 January 2007.

1.30 The initial report will be first reviewed by the international expert review teams (Kyoto Protocol, Article 8) within one year from the date of submission. The reports will also be forwarded to the Compliance Committee. Unless the enforcement branch of the Compliance Committee finds otherwise, the country is considered to meet the eligibility criteria 16 months after submitting the initial report. A Party may be considered to meet these eligibility requirements at an earlier date, if the enforcement branch of the Compliance Committee decides that it is not proceeding with any questions of implementation relating to these requirements indicated in the reports of the expert review teams.

1.31 After this initial determination, a Party continues to be eligible to participate in emissions trading, unless the Compliance Committee decides to suspend the eligibility and transmits this information to the UNFCCC Secretariat.

⁷ Decision on the review process for the period of 2006-2007 for Annex I Parties that are also Parties to the Kyoto Protocol.

2. INTERNATIONAL CARBON MARKET AND AAU TRADING STRATEGIES

2.1 The international carbon market is so far dominated by the credits generated by the Kyoto Protocol's project-based mechanisms, namely the Clean Development Mechanism (CDM) and Joint Implementation (JI).

2.1 OVERVIEW OF THE INTERNATIONAL CARBON MARKET

2.2 The international carbon market was led by public buyers in the first few years. Between 2000 and 2005, an increasing number of mostly institutional investors, such as EBRD, and the World Bank, and government buyers, such as the Netherlands, Finland, Austria, and Denmark, engaged in purchasing ERUs from JI projects. The entry into force of the Kyoto Protocol in February 2005, as well as the adoption of the Linking Directive (2004/101/EC), which allows European companies to use JI and CDM credits for compliance under the EU Emissions Trading Scheme (EU ETS), have triggered further interest of private entities, although some of the large carbon procurement programs are still administered by governments and multinational institutions, such as the World Bank. The increased demand has also caused a remarkable shift from buyers' to sellers' domination on the JI/CDM market.

2.3 Unlike the CER and the ERU, the market for AAUs does not yet exist. International Emissions Trading (IET) has not started, although in principle, forward transactions are possible.⁸ There is little private demand for acquiring AAUs, though some private companies (mainly from Japan) have shown interest. The private demand for AAUs would probably have been larger (particularly in Europe), if participants in the EU ETS could have used them for compliance under the EU ETS. This is not likely to be allowed in the first commitment period until 2012.

2.2. POTENTIAL DEMAND FOR AAUS

2.4 Countries with emission reductions targets under the Kyoto Protocol—so-called Annex B countries—need to fulfill their compliance obligations during 2008-2012. It is clear already that some countries will experience significant difficulties in meeting their commitments. In principle, Annex B countries have four ways to fulfill their targets. First, they can implement domestic measures that reduce GHG emissions or enhance CO₂ removal from atmosphere; second, they can purchase emission reductions through JI projects; third, they can purchase emission reductions from developing countries through CDM projects; and fourth, they can purchase AAUs through IET.⁹ Each method has associated risks and costs—for many industrialized

⁸ Actual transfer of Assigned Amount Units is not technically possible before 2008, when Kyoto's first commitment period begins. Several forward agreements concerning AAU transfers have been signed – mainly related to early crediting of JI projects.

⁹ Another potential option is joint fulfilment under Article 4 of the Kyoto Protocol whereby Annex B countries can agree to fulfil their commitments jointly and redistribute their Kyoto targets. The "EU bubble" is the only example of such an agreement concluded under Article 4 of the KP and it is significant for the 15 "old" EU member states. As

countries domestic measures are the most costly. The Kyoto Protocol stipulates, however, that domestic measures must constitute a “significant element” of the efforts to meet the emissions reduction target.

2.5 Most Annex B countries that are short of emission reductions believe that domestic measures, together with JI and CDM will be insufficient to meet their compliance targets, meaning they would also need to tap into IET (see Table 3). The JI projects have started more slowly than originally expected, and given the current pipeline, they can generate only limited emission reduction units (ERUs) during the five-year commitment period. The CDM projects are potentially a low-cost source of emission reduction credits, except that they must go through quite a rigorous process, which is expensive and time consuming.

Table 3: Kyoto Parties and their forecasted shortages and surpluses¹⁰

Country	Base year (Mtons CO ₂ eq)	Kyoto target %	GHG emissions in 2004 (Mtons CO ₂ eq)	Target estimate (average annual emissions (Mtons CO ₂ eq)	Projected 2010 emissions with existing measures (Mtons CO ₂ eq)	Average use of Kyoto mechanisms with existing measures (Mtons CO ₂ eq in 2010)	Projected annual Kyoto Gap (surplus)
EU-15	4,266	-8	4,227	3,924	4,197	106.64	166
EU-8	1,096	-7	742	1,023	806	-	(217)
Russian Federation	3,047	0	1,941	3,047	2,518	-	(528)
Ukraine	925	0	413	925	469	-	(457)
Other EITs*	426	-8	252	393	281	-	(112)
Canada	605	-6	780	568	832	not stated	264
Japan	1,261	-6	1,355	1,186	1,337	20.00	131
Rest of Annex B**	168	-2	186	165	197	11.60	21

* *except EU-8, Russia and Ukraine*

** *without Us and Australia*

Source: World Bank database

2.6 The compliance gap of Annex B countries (without economies in transition), after planned and additional domestic measures are implemented,¹¹ is estimated by the World Bank to range between 2,000 and 3,000 MtCO₂eq during the first commitment period 2008-2012. Supply estimates from CDM and JI up to 2012 may be 900 to 1,300 MtCO₂eq and 100-300 MtCO₂eq, respectively.¹² Therefore, a global compliance gap after domestic measures and project-based

mentioned earlier, the new members, including Latvia, are not and cannot be parties to the “bubble” in the first commitment period (2008-2012) in accordance with Article 4.4 of the Kyoto Protocol.

¹⁰ Calculations based on UNFCCC projections and SBI inventory reports. Most inventories lack data on LULUCF emissions or sinks.

¹¹ The Annex B countries compliance gap (without economies in transition) with existing domestic measures is estimated at 3,600–4,000 MtCO₂eq. Additional domestic measures together with sinks are estimated to decrease 1,000–1,600 MtCO₂eq during the first commitment period 2008–2012. As for EU15, ETS is also counted as their domestic existing measures. Some countries count Kyoto flexible mechanism that they have already embarked on as their domestic existing measures. The figure quoted above excludes all the Kyoto flexible mechanism from the existing measures.

¹² As for CDM, Point Carbon estimates between 900–1,300 MtCO₂eq. The UNFCCC expects more than 1,200 MtCO₂eq (up to 2012) from projects in the pipeline, of which 560 MtCO₂eq come from registered projects. As for JI, Point Carbon estimates at least 270 MtCO₂eq (up to 2012), while others estimate 72 MtCO₂eq (up to 2012). 400 MtCO₂eq that have already been officially announced as the amount to be procured through the CDM and JI by some Annex I countries is included in the figures above.

credits is expected to be between 400 and 2,000 MtCO₂eq during the commitment period.¹³ This is currently the best estimate of the potential demand for AAUs under IET.

2.7 The right to trade AAUs under the Kyoto Protocol is vested in the signatories (sovereign governments), therefore especially in the initial phase of AAU market development, buyers and the sellers will likely be sovereign government(s) although in principle both parties can also authorize private entities to trade.

2.8 While a pilot GIS transaction may be targeted mainly at sovereign buyers, its structure may be designed to allow future participation of private buyers. Private entities can participate in trade only if authorized by sovereign governments (Article 17 of the Kyoto Protocol and Marrakesh Accords). The demand for AAUs from private European buyers is likely to be limited as long as AAUs cannot be used for compliance under the EU ETS (see discussion below). Private entities from some other countries (mainly Japan) have already indicated their interest in the transactions (which may be authorized by the Japanese Government).¹⁴ Potentially they could agree on more flexible transaction structures and absorb more reputation risks in exchange for lower AAU prices. For this reason, Latvia should choose pilot transaction buyers carefully because this will also affect its reputation as a seller for subsequent deals.

Demand by major groups of buyers

The EU15

2.9 About 40 percent of the global demand for carbon credits is likely to come from the EU15 because this region has an estimated compliance gap of 800–1,400 MtCO₂eq (after existing and additional domestic measures) over the Kyoto period. The existing carbon procurement programs of European countries indicate that about 530–600 MtCO₂eq emission reductions shall be provided through credits generated by the Kyoto Protocol's flexible mechanisms (JI, CDM and IET) during 2008-2012 (see Table 4). The rest of the compliance gap will be closed using additional domestic measures. Information provided by member states to the Commission suggests that resources allocated thus far for these purchases reach 2.7 billion Euro (see Table 4 below). Figure 4 below illustrates the potential gaps to compliance with individual Kyoto targets for all EU25 countries.

¹³ Subject to change pending some key players announcement of their climate plans (e.g., Canada and New-Zealand).

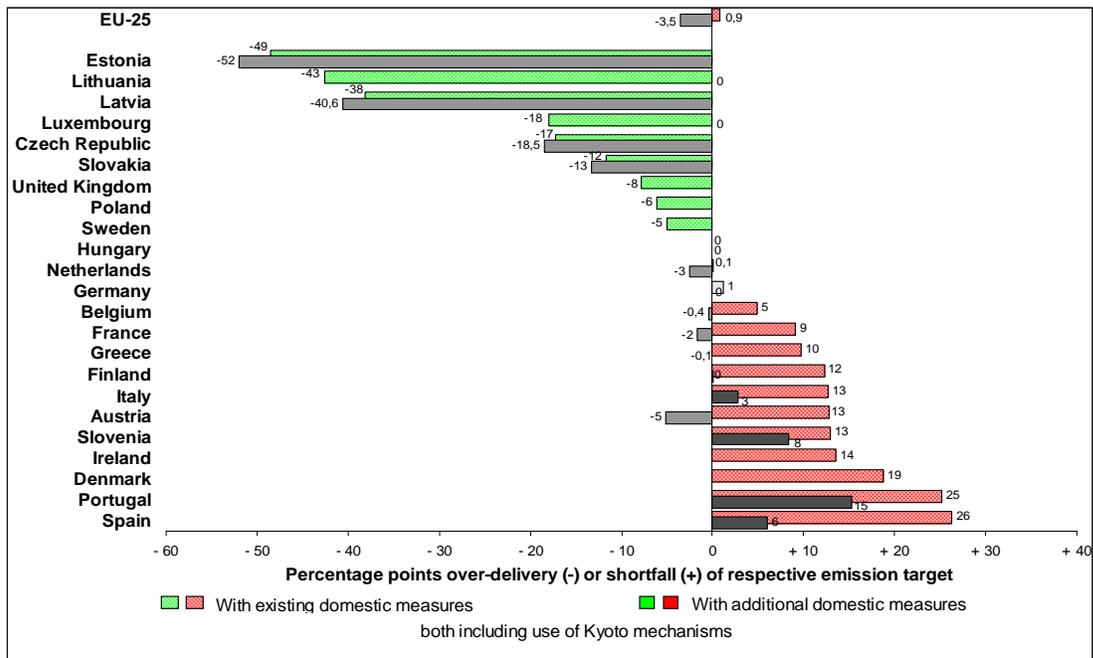
¹⁴ In principle, Japanese industries that participate in Keidanren (Japan Business Federation) Voluntary Action Plan and are authorized by the Government of Japan could purchase and hold AAUs as one of compliance tools under the Plan. In this case, their preference of greening might differ from that of Japanese government.

Table 4: Use of Kyoto Mechanisms by EU15: planned purchases by selected EU Member States

Country	Million tonnes of CO ₂ eq.
Austria	35.0
Belgium	42.0
Denmark	22.5
Finland	12.0
Ireland	18.5
Italy	198.0
Luxembourg	15.0
Netherlands	100.0
Spain	100.0
Sweden	5.0

Source: Simon Marr, Climate, Ozone and Energy Unit, DG Environment, European Commission: presentation at the EU-Ukraine Workshop on Kyoto Protocol 21 December 2005.

Figure 4: Distance-to-target in 2010 (percentage points) for the EU 25, including Kyoto mechanisms (2003)



Notes: Data exclude emissions and removals from land-use, land-use change and forestry. All EU15 Member States provided projections assuming existing domestic policies and measures. Several countries provided projections with additional domestic policies and measures. For the following Member States the additional effects of the use of Kyoto mechanisms is included: Austria, Belgium, Denmark, Finland, Ireland, Italy, Luxembourg, the Netherlands and Spain). For EU15 the effect of use of Kyoto mechanisms is calculated based on information from these nine countries. Projections for Poland cover only CO₂ and N₂O and include LULUCF. Projections for Spain cover only CO₂. Projections for Cyprus and Malta are not available. Source: EEA, 2005

2.10 Each Member State of the European Union decides whether to use the Kyoto mechanisms and how much to use them—including their participation in the AAU market. This is outside the powers of the European Community. The countries that have so far shown most interest in the AAU trade include the Netherlands, Italy, Spain and Austria. Finland has recently expressed an interest in purchasing small quantities of AAUs as part of its Kyoto compliance strategy. As a result of the gaps to the Kyoto targets, other member states may announce interest in AAUs. The strategies of AAU purchases are not yet elaborated by the EU countries. Discussions began early 2006.

Japan

2.11 Japan's 2004 emissions were 169 MtCO₂eq above its target. Based on UNFCCC projections, Japan's shortage ranges between 100 MtCO₂eq–500 MtCO₂eq over the first commitment period, depending on additional domestic measures. Moreover, Japan has a relatively energy-efficient economy, which limits further reduction potential. Therefore Japan could be one of the most aggressive AAU buyers. In March 2006, the Japanese government and Japanese companies comprised the second largest investor in JI and CDM credits, after the EU.

2.12 In April 2005, Japan adopted the “*Kyoto Protocol Target Achievement Plan*”,¹⁵ which includes the use of the Kyoto flexible mechanisms (100 Mt CO₂eq over five years), and includes explicit reference to the Green Investment Schemes (GIS). In this context, the Japanese government has also launched in 2006 the “*Kyoto Credits Acquisition Program*” to acquire the Kyoto credits. However some measures on which the plan relies are not assured, and CO₂ emissions in 2010 would probably be higher than the plan estimates. Therefore Japan's purchase of the Kyoto commodities may exceed the government's estimate of 100 MtCO₂eq.

2.13 The Japanese government has imposed neither mandatory emission reduction targets nor environmental taxes on domestic entities. To prevent the enactment of such legally binding measures, Japanese industry sectors adopted the “*Keidanren (Japan Business Federation) Voluntary Action Plan*”¹⁶ in 1997, and have been undertaking domestic emissions reduction measures and participating in the carbon market. Privately purchased AAUs can be surrendered to the government to achieve compliance with companies' voluntary targets, similar to CERs and ERUs.

2.14 Japanese public and private investors are concerned about the reputational risk of purchasing “hot air”, i.e., emission allowances not backed up by additional emission reduction. In March 2006, the Japanese government released a GIS Study Report that proposes starting from a project-based GIS approach—the AAU transaction should be linked only to projects abating GHG, like CDM and JI. Other greening measures, as capacity building or reduction of conventional air pollutants (e.g., SO_x) were not considered acceptable. The report also suggests that future GIS could be implemented based on a wider concept of “greening.”

¹⁵ Targets have been established for each sector, such as industry, transportation, and the household and commercial sectors. The plan is based on an estimated 150 Mt CO₂eq shortfall per year. It is expected to be filled in as follows: 54 percent through emission reductions by additional mitigation measure; 33 percent through sequestration, promotion of urban greening, and so on; and 14% through purchasing carbon credits under the Kyoto flexible mechanism (CER, ERU, AAU). Support to proto-type GIS is envisaged. The plan excludes sequestration credits (LULUCF) and nuclear CDM.

¹⁶ This is a joint effort by 35 industry sectors representing about 45 percent of Japan's CO₂ emissions. The plan collectively aims to reduce by 2010, fossil-based CO₂ emissions from industry and transportation sectors to below 1990 levels.

2.15 The Japanese government is ready to authorize private entities to purchase AAUs. Some Japanese trading companies have shown strong interest in GIS and have submitted several generic GIS proposals to countries in Central and Eastern Europe. Actually the first, albeit small, AAU purchase agreement was concluded by the Japanese trading house (see Box 2). Participation of Japanese private entities in the GIS is also proposed in the report mentioned above, based on the idea that the know-how and technology of Japanese private entities should be utilized under the GIS.

Box 2: Purchase of AAUs from Slovakia by Sumitomo Corporation

According to the Japanese trading house Sumitomo Corporation Social and Environmental Report 2004, the government of Slovakia sold Sumitomo Corp. 100,000 AAUs on 8 April 2003. The broker of this transaction - Evolution Markets LLC—claims that the total volume amounted to 200,000 AAUs. According to a press release by the broker, the Slovak Ministry of Environment, the authorized body of the Slovak government for climate change, has guaranteed to transfer AAUs to Sumitomo Corporation during 2008-2012. The AAUs will be transferred from the Slovak national registry to the buyer through Menert s.r.o., a Slovak engineering company. The revenues would go directly to Evolution Menert, a joint venture of US-based Evolution Markets (broker) and its Slovak partner Menert s.r.o. The emissions reductions were bought by this company from Slovakian plants and would support pre-identified greening projects.

Canada

2.16 Canada has the largest expected compliance gap relative to Kyoto target. Country's 2004 emissions were 212 MtCO₂eq above its target emissions in 1990. The UNFCCC forecasted an increase in the compliance gap over the first Kyoto compliance period to 1,320 MtCO₂eq.

2.17 Until recently, Canada was aggressively pursuing strategies to use Kyoto flexible mechanisms to meet country commitments. In 2005, the government commissioned an expert paper, "*Greening Canada's International Credit Purchases*",¹⁷ which declared Canada's commitment to purchase only "greened" international credits. Canada's April 2005 climate change plan "*Moving Forward on Climate Change: A Plan for Honouring our Kyoto Commitment*" envisaged a Climate Fund with an initial allocation of Canadian \$1 billion to purchase domestic and international emission reductions. While the Fund's primary mandate was to promote domestic GHG emissions reduction, the plan states that:

"The fund will also invest in internationally recognized Kyoto emission reductions through the Clean Development Mechanism and Joint Implementation, as well as through procedures for "greening" other international credits. Only 'green' credits — i.e., credits that represent real and verified emission reductions — will be recognized; there will be no purchases of so-called 'hot air.'"

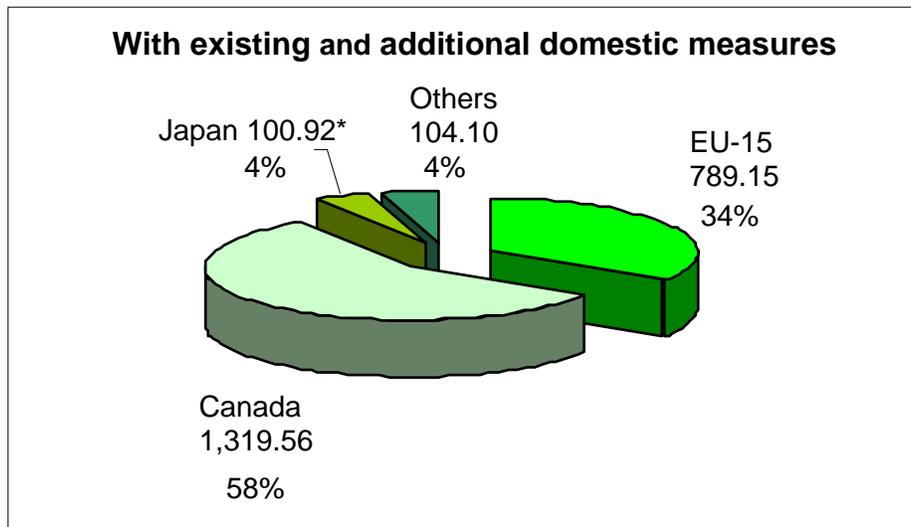
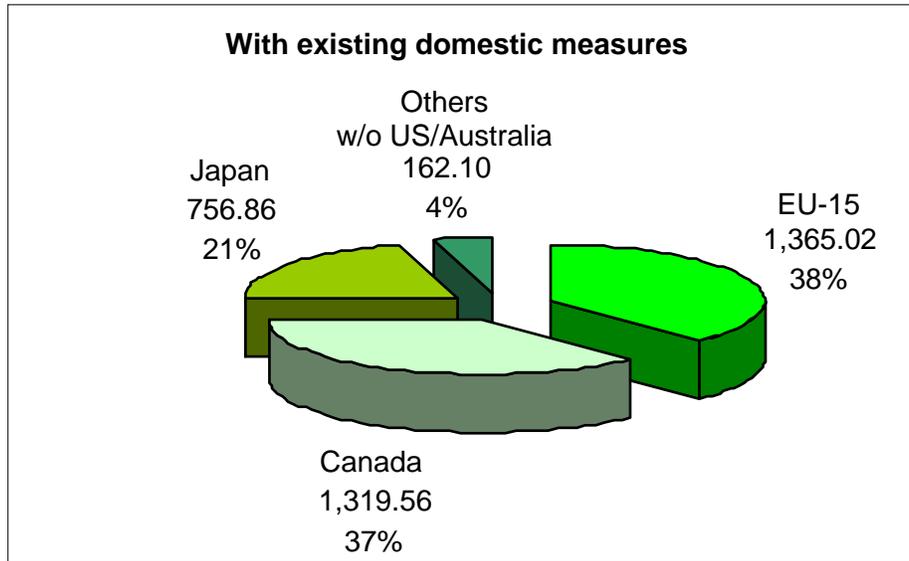
2.18 However, following January 2006 elections, the new government changed its policy with respect to using Kyoto flexible mechanisms. High-level officials suggest that Canada concentrate on domestic measures. If using Kyoto flexible mechanisms, direct trade benefits may be important for the country. The extent of Canada's commitment to its Kyoto compliance remains unclear. The new Prime Minister has expressed pessimistic views about Canada's compliance with its Kyoto target and there have been budget cuts for environmental programs designed to

¹⁷ Warren Bell and John Drexhage: *Greening Canada's International Credit Purchase: Experts Workshop on Canada's Climate Fund Discussion Paper*, International Institute for Sustainable Development, September 2005.

reduce greenhouse gas emissions. Canada may seek entry into the Asia-Pacific Climate Pact (AP6). Therefore, it is unlikely that Canada would participate in AAU transactions in the foreseeable future.

2.19 Figure 5 summarizes the structure of expected global demand by major buyers.

Figure 5: Potential Demand for AAUs by Major Buyers (Unit: MtCO₂eq)



Source: World Bank database

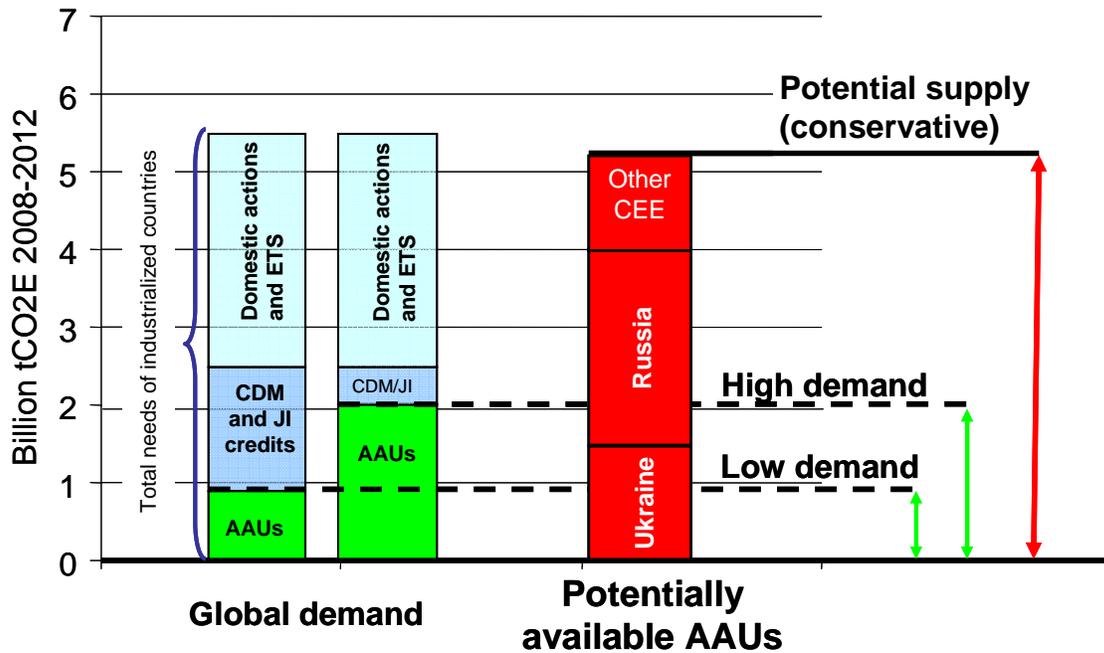
Note: Additional domestic measures for Japan include removal by sinks.

2.3. SUPPLY ON THE CARBON CREDITS MARKET

2.20 Latvia and other transition economies (EITs) are uniquely placed to harness benefits of international emissions trading under Article 17 of the Kyoto Protocol to modernize and reduce the carbon intensity of their economies. This is the only region with tradable surpluses of AAUs during the first commitment period of the Kyoto Protocol.

2.21 First commitment period surplus AAUs are estimated between 6,400–6,900 MtCO₂eq, which clearly exceeds AAU demand (Figure 6).

Figure 6: Expected demand and maximum potential supply of AAUs



Source: World Bank estimates

2.22 According to international models, Russia has the largest AAU surplus, followed by Ukraine, Poland, and other Eastern and Central European countries. Since the Russian government is now working on the first inventory, estimates of total Russian AAU surplus are approximate. If based on the latest reported emissions (1999), the Russian AAU surplus is 2,600 MtCO₂eq. Also, the recent statement made by high-ranking government official estimates total Russian AAU surplus may be between 2,500–3,000 MtCO₂eq. In Ukraine the AAU supply may range between 1,500 and 2,500 MtCO₂eq. The aggregated surplus from Eastern and Central European Countries amounts would be up to 1,600 MtCO₂eq, of which about one fourth accounts for Poland.

2.23 Not all surplus AAUs shown in Figure 6 will be for sale, but it is likely that the supply of AAUs will exceed demand, meaning that long-term international emissions trading is likely to be a buyer-dominated market. However, AAU supply may be reduced if a large-surplus seller fails to meet eligibility criteria defined under the Kyoto Protocol by the deadline. Even if all sellers meet eligibility criteria, the level of political consensus and know-how in these countries should be taken into account, when considering AAU supply in the market because internal disputes or low capacity to trade may restrict countries' participation.

2.4. BUYER PREFERENCES

2.24 To make AAU purchases more acceptable, potential buyers expect assurance from sellers that AAU revenues will be used in a dedicated effort to reduce emissions. This is the essence of “greening.” Many governments, private companies, and environmental NGOs are concerned that using large volumes of potentially available AAUs for compliance under the Kyoto Protocol could threaten international carbon market stability and undermine the environmental objectives of the Climate Convention. Sometimes AAUs surpluses are pejoratively labeled “hot air” because these credits originated from a decline in economic activities—not from dedicated efforts to reduce emissions.

2.25 Most potential government purchasers of AAUs have indicated that their interest in trading hinges on AAU revenues being used to support environmental projects and programs. One universal expectation among buyers is transparency, accountability, and credibility in the use of funds from AAU trade.¹⁸

2.26 From another point of view, some stakeholders argue that the tradable surplus of the countries was an essential part of the Kyoto political consensus, designed to encourage them to assume quantitative emission reduction targets. This “surplus” was known to parties during Kyoto talks and therefore, taken into account in the overall reduction commitment. Consequently, it can be said that this tradable surplus poses no threat to the environmental integrity of UNFCCC. Some argue that CEE countries have paid a price for achieving GHG emissions reduction through economic decline, poverty, and social disruption after the collapse of the Soviet Union.¹⁹ Yet, an international consensus is emerging that international emissions trading under Article 17 of the Kyoto Protocol should lead to additional environmental benefits through “greening” of AAUs, further supported by what is most likely to be a buyers’ market.

2.27 Some buyers are concerned that the AAU revenues would simply replace the existing or planned budgetary allocation to environmental activities. They argue that this would undermine environmental integrity of the scheme. The seller may need to demonstrate that the revenue generated through the GIS is used for programs and projects that are additional, i.e., that would not have been implemented otherwise, or would have been implemented much later or with much lower environmental benefits.

2.28 Buyers’ preferences are not yet cast in stone, although the principle is firmly established. The OECD governments have just started to discuss their policies and strategies for the purchase of AAUs, including the range of acceptable “greening” measures (i.e., uses of AAU revenues). These strategies can be influenced by the dialogue between sellers and buyers. Sellers could be particularly effective in pursuing their interests through preparing well structured and justified “greening” proposals, which would address buyers’ concerns and mitigate their risks.

¹⁸ Views on buyer preferences in this report are based e.g., on GIS roundtables organised by the World Bank in Spring 2006 in Paris and Cologne as well as GIS roundtable organised by the Latvian Government in Summer 2006.

¹⁹ In a strict economic sense, an economic hardship associated with a decline and restructuring of the post-Soviet economic system was not an economic (opportunity) cost of emissions reduction, because GHG emissions reduction was a marginal (if at all) objective of the post-Soviet restructuring. Furthermore, even if it would have been considered partly as economic cost of emission reduction, it would have been a “sunk” cost, thus irrelevant to current trading decisions.

3. CONCEPT OF A GREEN INVESTMENT SCHEME

3.1 “Green Investment Schemes” (GISs) are mechanisms established by the selling countries to assure buyers that AAU proceeds will be used to finance agreed environmental projects and programs.

3.1. PRINCIPLES AND DEFINITION OF A GREEN INVESTMENT SCHEME

3.2 There is no widely accepted definition of “greening” and the GIS has no legal basis in either the UNFCCC or the Kyoto Protocol. Decisions by the COP or the COP/MOP also do not include any provisions on how AAUs revenues should be used.

3.3 Buyers and sellers can embed greening activities in AAU purchase agreements. In the strictest interpretation, “greening” may require that every AAU transferred is matched by an emission reduction of one ton of CO₂eq of greenhouse gases or captured carbon, similar to JI or CDM projects. Other approaches link the transfer of AAUs to implementation of measures that generate GHG emissions reduction that are more difficult to measure or provide wider environmental benefits. “Greening” can also refer to using the AAU revenues to achieve local environmental benefits, or to develop environmental policies or institutions.²⁰

3.4 Regardless of how greening is achieved, suitable monitoring and verification measures would need to be adopted to ensure accountability for expenditure outcomes, credibility, and transparency. In return, the buyer country would provide GIS financing under the terms of a negotiated contract.

3.5 A properly designed, implemented, and supervised GIS can:

- Enhance AAU value and marketability;
- Partially restore marketable AAU assets;²¹
- Increase public acceptance of international emissions trading; and
- Facilitate long term GHG reductions and environmental sustainability of development.

3.2. POSSIBLE GREENING ACTIVITIES

3.6 There are many broad categories, under which the Government of Latvia could spend AAU proceeds for “greening.” These categories will be subject to bilateral negotiations with buyers. Each category will have specific requirements—subject to negotiations—for

²⁰ Early literature on the GIS (e.g., Russian and Bulgarian studies) distinguished “hard” and “soft” greening. However, recent consultations conducted by the World Bank indicated that buyers differ in their concepts of “hard” greening activities. Some buyers regard only traditional CDM/JI type projects as “hard” greening while others can also accept GIS management, climate change adaptation projects, or abatement of local pollution. Therefore where possible, this report refers to greening activities without reference to “hard” or “soft” greening.

²¹ The GIS offers an opportunity to support low cost emission reduction opportunities, thus increase the surplus. In this way, the GIS can partly replenish the marketable AAU assets of Latvia.

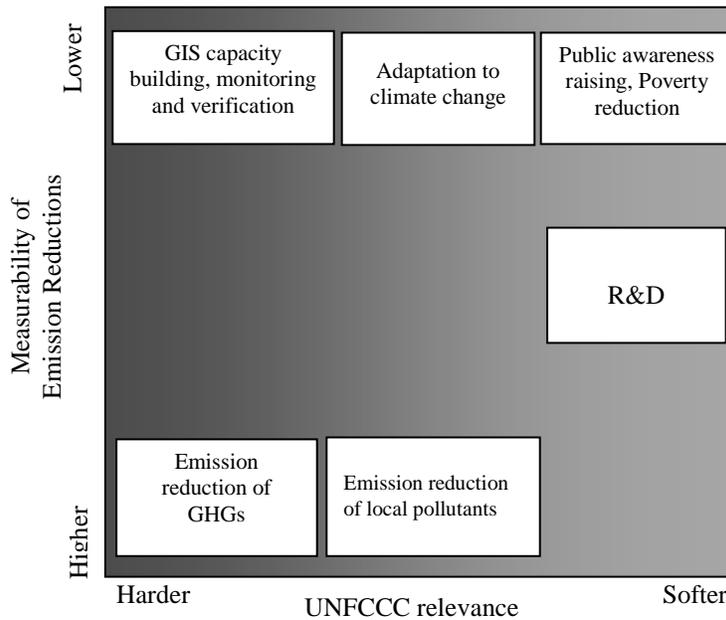
additionality, project selection, and verification, monitoring, and reporting results.²² The most commonly discussed options include:

- (a) **GHG emissions reduction.** A GIS could be modeled upon JI type projects, but provide more flexibility. For example, early or late crediting can be allowed, additionality requirements can be more flexible and verification of emissions reduction can be done by the entities accredited nationally. Moreover, the transfers of AAUs may be linked to projects and/or programs, for which the exact volume of GHG emissions reduction is more difficult to verify, such as energy-efficiency projects/programs.
- (b) **Emission reductions of local pollutants.** The proceeds from the sale of AAUs could be used to abate conventional air pollutants (e.g., SO₂, NO_x, Particulate Matter (PM), non-methane volatile organic compounds (NMVOCs)).
- (c) **Capacity building for GIS and for climate policy.** Capacity building of public institutions and project sponsors might be necessary to secure transparency, reliability and credibility of a GIS, and its smooth implementation. Examples include costs of legal and institutional developments, costs of managing and supervising GIS fund(s), development of climate mitigation and adaptation policies, technical assistance to project owners in preparing bankable proposals to a GIS fund, etc.
- (d) **Monitoring and verification of environmental effects of GIS.** The funds from the sale of AAUs might be used to strengthen national capacity to monitor and verify emissions reductions of GHG and other agreed local pollutants. If necessary, they can also be used to hire internationally accredited verifiers, should this be a requirement of some buyers for certain project types.
- (e) **R&D.** AAU proceeds could finance research, development and marketing of innovative low-carbon and environmentally friendly technologies.
- (f) **Raising awareness and capacity building.** Some buyers may agree to the seller spending a small fraction of the of AAU revenue on capacity building and public awareness raising, related to climate change mitigation and adaptation issues, as well as to wider awareness on environmental issues. Such activities can be implemented by state institutions and NGOs. Since the impacts may not be accurately measurable, the scope of this component must be clearly defined and agreed with buyers. Transparency and accountability for money flow must be secured.
- (g) **Adaptation to climate change.** Climate change adaptation could be one of the targets of use of the funds from the sale of AAUs, although few sovereign buyers have, so far, regarded this option as credible “greening”. Examples of possible expenditure categories include coastal zone protection against raising sea level or flood control.
- (h) **Poverty reduction and improvement of welfare.** Some sovereign buyers have indicated that the revenues could even be used for investments that reduce poverty and improve provision of welfare in the host countries.

3.7 Countries (both on sellers and buyers side) will have different priorities and interests on how the AAU revenues are spent. The graph (Figure 7) below illustrates relative positions of greening activities on two most typical scales of buyers’ preferences: measurability of results and UNFCCC relevance.

²² Some governmental buyers are also keen to see their purchase of assigned amount units linked to *traditional trade benefits*, such as using revenues to purchase equipment or services from the buying country firms. There is a risk that this tied procurement will limit competition and therefore decrease the efficiency gains of emissions trading. Furthermore, in Latvia, this would be prohibited to the extent such purchases are covered by the EU Competition Law. Bidding for large contracts to supply goods and services would need to be open to firms from all EU member states.

Figure 7: Relative positions of greening activities



Source: World Bank on the basis of AAU buyers Round Tables

3.3. LINKING JI AND GIS

3.8 Several buyers and private companies are concerned that the AAU trading may crowd out JI projects. These concerns are justified to the extent that AAUs and ERUs compete in the same market niches. Indeed AAUs may have some comparative advantages for buyers, including greater flexibility, lower project risk, and potentially lower transaction costs in the future. Advantages of ERUs include greater private demand, hence higher prices, mainly because unlike AAUs—ERUs can be traded under EU ETS. There are options for designing a GIS to minimize the threat of competition between the AAUs and JI projects.

3.9 GIS and JI can be used as alternative mechanisms, or they can be partly combined on a project level. Any JI project with a long lifetime can be paid in ERUs for emissions reduction during the period of 2008-2012²³ and in AAUs for the emission reduced before and after the first commitment period. Another example is that GIS would pay for emissions reduction of other local pollutants than GHG generated by JI projects. Some governments promote such a “topping up”, while others prefer to keep JI projects outside of a GIS. The benefits of linking these two revenue flows include an opportunity to trigger projects that are marginally financially viable with JI cash flow alone. It could also trigger redesign of certain projects in order to improve their environmental performance and avoid transferring environmental problems from global to local level (e.g., reduction of local pollutants may require additional energy consumption). JI project that reduce GHGs emissions during the 2008-2012 period will leave the amount of surplus AAUs of a country unaffected. Such a “topping-up” is in fact nothing new. It is already used in several JI projects but as a premium not for late, but for early emissions reduction achieved before 2008. These early credits are paid against a commitment by the host country to transfer AAUs to a buyer’s country after 2008.

²³ Generation of ERUs could in theory continue beyond 2012 subject to relevant COP/MOP decisions.

3.10 Eligibility criteria for International Emissions Trading are exactly the same as for JI first track. Therefore, it may make sense to transfer emission reductions credits generated by projects in 2008-2012 as ERUs due to the higher expected values in comparison with AAUs. Higher prices are likely to be driven by the demand for ERUs from EU ETS. As discussed earlier, the AAUs cannot be converted to EU Allowances and used for compliance by operators of EU ETS installations. Applying procedures developed for the approval of JI track 2 projects can be used to appraise GIS projects, and JI track 1 verification procedures (to be nationally developed) can also be used under a GIS.

4. MANAGING ASSIGNED AMOUNT UNITS

4.1 Although AAUs may not qualify as an asset under international accounting standards and national state accounting systems, Latvia's tradable surplus of AAUs represent potential monetary value.²⁴ The hypothetical book value of the whole AA will not be the same as the market value that Latvia will be potentially able to cash. The Kyoto Protocol gives the signatory countries AAU assets and imposes specific liabilities—countries are obligated to surrender to the UNFCCC Secretariat the volume of AAUs equal to net emissions of GHGs (accounting units of liabilities) between 2008-2012. Therefore, only surplus AAUs will be tradable and represent true potential market value to each country.

4.1. PRINCIPLES OF AAU MANAGEMENT

4.2 As a result, an economic objective for Latvia would be to maximize the net present market value of AAUs by increasing the volume of tradable AAUs and by getting the best price per AAU (see Box 3).

Box 3: Economics of decision making about AAU trading

Theoretically, Latvia should be making on-going decisions, whether to sell or buy the AAUs, based on the costs of reducing GHG emissions and the expected AAU price. In practice, Latvia—as many other EITs—is going to be the net seller due to historical emission reductions achieved in the 1990s.

The value of the AA will be the NPV of a product of the quantity measured in Assigned Amount Units (accounting units of AA under the Kyoto Protocol) and the price of AAU. The *volume* of tradable AAUs can be increased by reducing net GHG emissions. By economic theory, as long as the marginal cost of GHG reduction is lower than expected price of one AAU, it would be efficient to reduce emissions and sell AAUs. Given the often long lag time between investment decision and generation of emissions reduction, it is important to develop a significant investment portfolio before or at the beginning of the Kyoto commitment period. Only emissions reduced before 2012 qualify as surplus tradable AAUs. Considerable uncertainty surrounds the value of AAUs in the post Kyoto period.

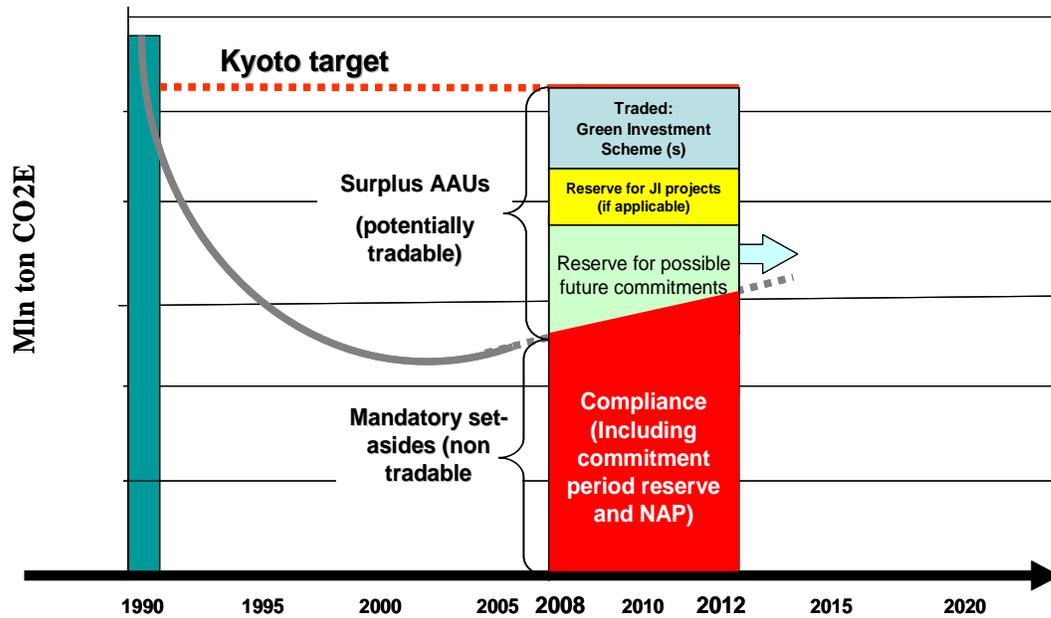
Future AAUs *prices* are difficult to predict because the AAU market does not yet exist, and references to historical transactions cannot be made. Ultimately, the long-term price trend will be determined by the willingness of buyers to pay for AAUs, which in turn will be shaped by their compliance gap and the cost of alternatives to meet Kyoto commitments (e.g., domestic emission reductions, purchases of CERs from CDM projects, or ERUs from Joint Implementation projects). The EU allowance price is irrelevant to the AAU price because these two markets are separate. The AAU price will also be influenced by risks associated with delivery of AAUs (e.g., the probability that the seller will meet eligibility criteria to participate in IET under the Kyoto Protocol and Marrakesh Accords) and the quality of AAUs (e.g., how credible and “green” the expenditures financed from AAU revenues). Credible “greening” enhances the quality of AAUs, hence the price. More discussion about pricing can be found in Chapter 5.5.

²⁴ See Chapter 6 for discussion on the legal definition of AAUs.

4.2. OPTIONS FOR ALLOCATION OF AAUS

4.3 To estimate the volume of tradable AAU surplus, each Party to the Kyoto Protocol must divide its total assigned amount (AA) into tradable and non-tradable baskets. (Figure 8)

Figure 8: Assigned amount distribution in tradable and non-tradable baskets



4.4 First, each country must set aside the AAUs needed to comply with Kyoto emissions commitments. These AAUs must be surrendered to the UNFCCC Secretariat by the end of the additional period for fulfilling commitments defined under the Kyoto Protocol—mid-2013 to beginning 2014²⁵. For EU members this basket has three components:

- National Allocation Plan (NAP);
- Actual emissions not included in the NAP; and
- Obligatory commitment period reserve.

4.5 *National Allocation Plan (NAP)* is a partly tradable basket of AAUs allocated for compliance by the installations participating in the EU Emissions Trading Scheme. The AAUs in this basket are “labeled” as EU emissions allowances and allocated to the participants of the EU ETS through a NAP. The EU allowances that are not needed for compliance under EU ETS can be traded between eligible participants from all 25 EU members, who can set aside reserves in the NAP for emissions of new entrants, auction, and for JI projects (to avoid double-counting) (Box 4).

²⁵ Ultimately until the hundredth day after the date set by the Conference of the Parties serving as the meeting of the Parties to the Protocol for the completion of the expert review process under Article 8 of the Protocol for the last year of the commitment period.

Box 4: EU ETS, JI and double-counting

The EU ETS may reduce JI potential in Latvia. According to the so-called "Linking Directive" (Directive 2004/101/EC), ERUs from JI projects influencing EU ETS installations may only be issued, if an equal number of EUAs is cancelled from the Registry of the Member States of the ERU's origin. This prevents the double counting, i.e., selling both ERU and EU allowance for the same unit of emission reduction.

- To avoid double counting, two approaches are applied under EU ETS:
- If the JI project activity directly reduces the emissions of the project installation itself or clearly defined other EU ETS obligated installation and claims ERUs for the reductions, the operator of the directly affected installation(s) needs to cancel one of its Allowances for each ERU issued.
- If the project activity indirectly reduces the emissions of a large number of installations and the impact on each individual installation is not easy to quantify, the Government needs to establish a national "JI project set aside" of EU ETS Allowances, from which an Allowance is cancelled for each ERU issued. A typical example of this is when the JI project activity displaces fossil fuel based generation in the national grid.

AAU trading does not involve double counting in the meaning of the Linking Directive, because this concept is relevant only in the JI/CDM context. Unlike ERUs, AAUs can be issued and transferred without any associated emission reductions. There is no obligation to cancel EUA from the National Registry when the AAU is transferred. However, state aid will be an issue, because it can be considered as indirect aid to EU ETS installations, hence - distorting trade within EU. The state aid considerations are discussed in Chapter 6.

4.6 **AAUs to cover actual emissions not included in the NAP.** These AAUs are not tradable, because they must be surrendered to UNFCCC in the amount equal to emissions from sources not covered by the EU emissions trading scheme, such as transport, agriculture and municipal sector as well the greenhouse gases other than CO₂.

4.7 **Obligatory commitment period reserve.** Under the Kyoto Protocol and Marrakesh Accords each Annex B Party must hold in its National Registry the volume of AAUs equal to the lowest of: (a) 100 percent five times the Party's most recently reviewed emissions inventory²⁶; or (b) 90 percent of the Party's initial assigned amount (its emissions limitation commitment). The first provision (five times recent inventory) is likely to be the lower quantity for Latvia. Since Latvia's GHG emissions are slowly growing, the recent inventories are most likely to show the lower emissions than current emissions during the commitment period. Therefore, obligatory commitment reserve is not likely to pose additional constraint on tradable surplus of AAUs.

4.8 The remaining AAUs in Latvia's National Registry will be tradable in principle under Article 17 but Latvia can decide not to sell them during the first commitment period. Below are three broad options for allocations of tradable AAUs:

- Bank AAUs for future periods;
- Reserve AAUs for non-performing JI projects; and
- Sell AAUs.

4.9 **Bank AAUs for future periods.** Latvia may reserve for future sale a portion or all tradable AAUs (beyond 2012) if it believes that their value will increase faster than the value of

²⁶ Technically, the commitment period reserve will be implemented through electronic checks of proposed quota transfers between national registries. The country can sell AAUs equal to the difference between the amount of AAUs in its registry and the reserve requirement. The reserve requirement changes each time an annual emissions inventory is reviewed. Review of an emissions inventory may not be completed until two or three years after the end of the year, during which the emissions occurred.

alternative assets (see Chapter 2 for opportunities and risks of holding AAUs). A decision to sell AAUs means that the government believes that AAU prices are likely to decrease or that the economic return on investments financed by AAU revenue will exceed the value of holding AAU assets. The decision to bank AAUs for post-2012 periods will hinge on the nature of Latvia's future obligations under the UNFCCC and the Kyoto Protocol. Until now, no amendment has been adopted on emission reduction targets effective as of 2013, but negotiations on future actions and commitments under both the UNFCCC and the Kyoto Protocol were launched in Montreal in December 2005. The European Union has already indicated that future emission reduction targets must be more stringent. The European Environmental Council²⁷ concluded that future emission reduction targets in 2020 should be 15-30 percent below the 1990 levels and in 2050, 60-80 percent below 1990 levels.²⁸ International negotiations on post-2012 framework are still in the early stages so the EU Member States have not yet agreed on the distribution of potential emission reduction commitments following 2012, or on potential compensation for sharing the burden within the EU.

4.10 Globally—despite uncertainty about post Kyoto commitments—it is unlikely that future financial benefits from Kyoto flexible mechanisms would be as generous. Incentives offered under the Kyoto Protocol to encourage economies in-transition to assume quantitative targets will most likely be shifted to China, India, and Brazil—rapid-growth developing countries

4.11 ***Reserve AAUs for non-performing JI projects.*** Latvia may consider creating an AAU reserve in the National Registry equal to the likely amount of non-delivered ERUs from JI projects.²⁹ There are no established benchmarks for the size of a prudent reserve—each country must base its decision on the risks of non-delivery of ERUs and the political willingness to bail-out private JI project owners. Some countries have also agreed to transfer pre-2008-2012 emission reductions from JI projects to AAUs (“early crediting”) and those AAUs need a reserve.

4.12 ***AAUs available for trading.*** The volume of AAUs that remain after banking and reserves can be traded. Parties can either trade through government-to-government transactions, or can authorize legal entities to conduct AAU sales and purchases. The uncertainties and risks of the incipient AAU market (including AAU delivery risk and a “greening” risk) will likely mean that AAU pilot sales will be undertaken by Governments. After pilot transactions have established market rules and “branding” of Latvia's AAUs, government may consider authorizing private entities to continue trading—for example by allocating some AAUs to special accounts in the National Registry, from which authorized entities could execute sales.

4.13 Decisions about when and how to float Latvia's AAUs, will be driven by market analysis, price forecasts, emission projections, and reserve needs. The AAUs can also be sold to raise cash flow for domestic investment. Buyers' acceptance of the credibility and accountability of use of revenues will increase market value of Latvia's AAUs.

²⁷ Council Conclusions of 20 December 2004, “Medium and Long-term Emission Reduction Strategies, Including Targets”; Council Conclusion of 10 March 2005, “Medium and Long-term Emission Reduction Strategies, Including Targets”; Presidency Conclusions for the European Council, 22-23 March 2005.

²⁸ In EU jargon, the expression is “pathways in a context” meaning that these targets must be seen in the context of how they can be achieved, including cost-benefit, and how to involve major energy-consuming developed and developing countries. It means that these are not targets EU would unilaterally assume without other countries' participation, and the numbers are quite controversial also within the EU.

²⁹ Well-performing JI projects do not affect tradable AAU surplus. ERU can be seen as converted AAU with the project identifier. ERUs issued under Kyoto Article 6 decrease AA and emissions by the same amount; hence surplus AAUs remain the same.

5. TRANSACTION STRUCTURES

5.1 This chapter deals with three major parameters of AAU transactions: payment schedule, product differentiation, and pricing.

5.1. PRINCIPLES OF STRUCTURING AAU TRANSACTION

- 5.2 Key design principles for Latvia's GIS transaction structure include the following:
- Maximize present value of benefits;
 - Minimize risks; and
 - Ensure the transparency, accountability, and efficiency of AAU transactions.

5.2. SCHEDULING TRANSACTIONS

5.3 It would not be prudent to sell all tradable AAU stock at once. Given the emerging character of AAU market and its uncertainties, a pilot forward transaction followed by subsequent forward and spot sales would enable Latvia to adjust to evolving market conditions. Price estimations for AAUs are difficult because government buyers are risk averse, and the scale of private buyer participation is uncertain.³⁰

5.4 The first AAU transaction could be concluded by Latvia as early as 2007, even though it may be the beginning of 2008 for official declaration that Latvia is eligible to trade AAUs.³¹ However, since it is highly likely that Latvia will be eligible, buyers may be willing to conclude AAU purchase agreements as early as 2007 on condition of future disbursements and "greened" AAU transfer (forward contract).

5.3. SCHEDULING PAYMENTS, DELIVERING AAUs AND GREENING

5.5 The most likely pilot phase transaction will be a forward contract with future delivery of "greened" AAUs and payments. Therefore, the major issues in trading "greened" AAUs will be sequencing payments from buyers, delivery of AAUs to buyers, and timing for greening projects or programs.

- 5.6 Key scheduling parameters in the negotiations will be the following:
- Duration of crediting period;
 - Schedule of AAU transfer;
 - Schedule of payments for AAUs;
 - Schedule of delivery of greening measures.

³⁰ See also discussion on trading strategies in Chapter 2 on AAU market trends.

³¹ The Initial Report was submitted to the UNFCCC Secretariat in December 2006.

5.7 During the Kyoto commitment period spot transactions will also be possible for eligible sellers and buyers. In this case, buyers can pay after AAUs are issued and transferred to a buyer's national registry. This would eliminate the buyers' risk of delivery of AAUs for compliance under the Kyoto Protocol, but would not fully mitigate the risk of delivery of "greened" AAUs. Also, forward transactions may be more secure than spot transaction for mitigating buyers' risk of compliance with Kyoto target because forward contract buyers could have priority to purchase "greened" AAUs. Spot transactions are likely to emerge only if an AAU market elicits increases in the number of market players and the volume of AAU transactions and if large emissions reductions can be achieved early.

5.8 The Kyoto Protocol specifies the schedule for AAU transfer: AAUs can be issued and transferred only during the commitment period 2008-12 (in practice, the accounting period stretches to 2013). The schedule of associated emission reductions and payments can be determined in bilateral agreements between sellers and buyers. The transfers of AAUs and money during 2008-12 can be linked to delivery of emission reductions of GHGs beyond 2012 ("late crediting") and/or before 2008 ("early crediting"). A longer crediting period eases pressure on a seller, but increases buyers' reputational risk that greening benefits will not be fully delivered after 2012. The schedule of payment is also subject to bilateral agreement.

5.9 From Latvia's perspective decisions on how to use funds should focus on Latvia's priority investment needs for environmentally sustainable development. Latvia may want to propose a longer crediting period to AAU buyers to enable realistic annual volumes of emission reductions.

5.10 To launch a GIS during the first commitment period (2008-2012), Latvia will need financial resources to develop the required legal capability to issue and transfer AAUs. Earlier cash flow would be needed inter alia to establish the project pipeline management mechanism, the system for verification of emissions reduction and to provide early financial incentives to the pilot sub-projects. This early cash flow could come from forward AAU transaction advance payments, or could be raised using traditional financial tools such as a grant from Latvian authorities and foreign countries, Latvian and foreign project sponsors equity investments, commercial loans, or loans from foreign public financial institutions.

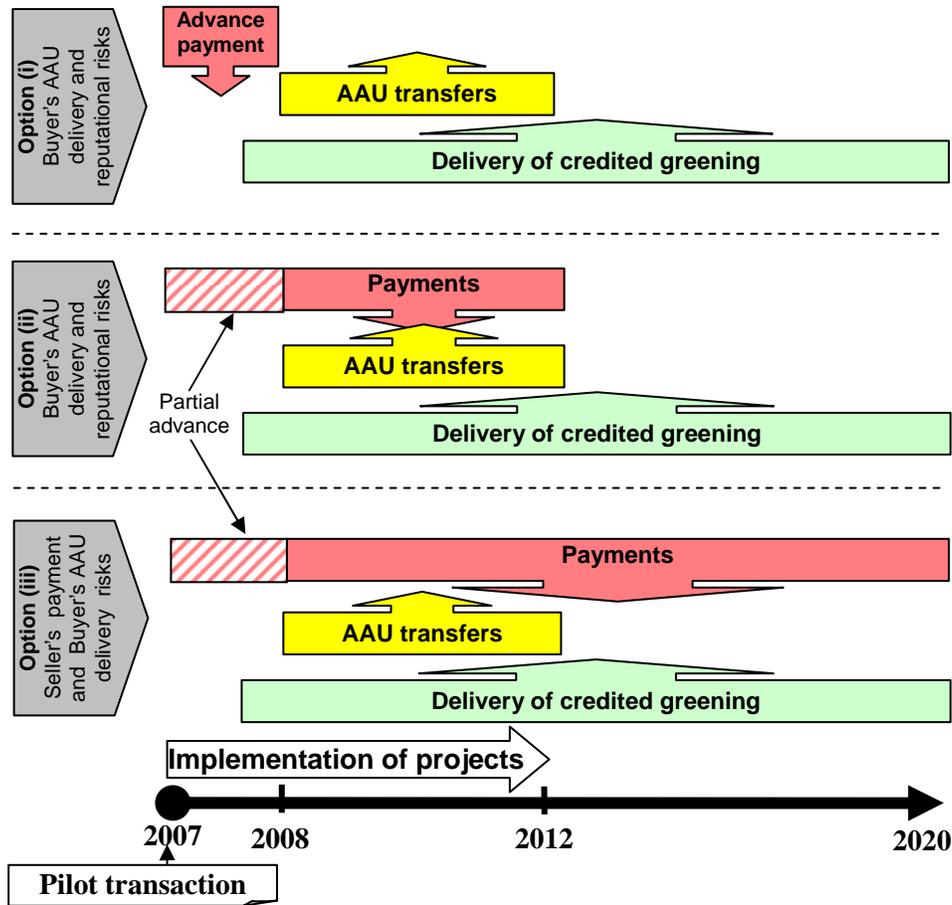
5.11 The schedule of buyers' payments to Latvia will be subject to individual agreement. In principle, payments for AAUs can be made in the following ways: (see Figure 9)

Option (I) *Before AAU transfer (forward transactions):* buyers face AAU delivery risk and the risk that the AAUs may be delivered but greening programs not implemented;

Option (II) *During the commitment period (upon delivery of AAUs or spot transactions):* buyers face AAU delivery risk and the risk of non-delivery of greening after 2012; with forward contract they still face the Kyoto target compliance risks if AAUs are not delivered.

Option (III) *During the entire crediting period (spot transactions or deferred payments on forward transactions):* if payment is triggered by delivery of verified environmental effects sellers face higher risk of partial non-payment. In addition, buyers will still face AAU delivery risk.

Figure 9: Generic options for scheduling buyers' payments for AAUs versus delivery of AAUs and delivery of greening measures



5.12 In some GIS projects and programs the need for early expenditures could be partly satisfied by upfront payments, which may require advance payments from buyers of AAUs (i.e., before AAUs are delivered by Latvia).³² Upfront payments would enable the projects/programs to start as planned if alternative source of financing is either not feasible or too costly, reducing financial liquidity risk and project completion risk. Details will be discussed in Chapter 11 on risk sharing and mitigation.

5.13 Option I—advance payment—exposes buyers to financial risk, AAU delivery risks, and Kyoto compliance risk. If a seller fails to deliver, not only will AAUs buyers have to recover payment, they will be forced to scramble to seek out other AAUs to purchase to meet their Kyoto obligations.

5.14 Under Option I, buyers also face potential reputational risk if sellers do not implement credible greening measures after they receive payment. To date, common practice in the carbon

³² Throughout the report “advance payment” refers to a AAU transaction level and “upfront payment” to a level of a financing sub-projects.

market has been to discount the price in exchange for advance payment. For the seller this will mean lower revenues but earlier cash in hand.

5.15 Payment to the GIS system upon delivery of AAUs (Option II in Figure 9) would minimize buyers' risk of obtaining AAUs, but would increase Latvia's risk of non-payment. It would also shift to the Latvian side the burden of fund raising to pay for upfront expenditures, likely increasing the risk that AAUs will not be greened if project sponsors do not have adequate access to credit, equity or grants. In the GIS in Latvia, most greening projects and programs are likely to consist of many small projects, such as energy efficiency in residential buildings and public buildings. In such cases, owners of these projects and programs may have problems raising finance for initial investments.

5.16 Disbursements from buyers could be linked to delivery of already-greened AAUs in the Kyoto commitment period, which would mean that buyers could pay only after verification and monitoring of the emission reductions. This could be applicable to all the projects and programs that aim for measurable reduction of greenhouse gases and local pollutants. Moreover, delivery options traditionally used in CDM/JI projects, such as put option,³³ call option,³⁴ and sweep option,³⁵ could be applied.

5.17 Disbursements to Latvia could also be linked to pre-determined and agreed milestones (performance indicators or benchmarks). This could apply to greening programs in which environmental benefits are more difficult or costly to measure. Examples of payment triggers are: equipment installation at project sites, removal of institutional barriers, passing regulations—these need to be agreed upon in advance by Latvia and buyers.

5.18 Option III (Figure 9 above)—buyers pay upon delivery of greening (i.e., even after 2012 and delivery of AAUs). This option would decrease the present value of the AAU revenues and expose Latvia to payment risk beyond the Kyoto period. If Latvia selects payment only after delivery of “greening” effects, it would be reasonable to charge a premium on deferred payments that would compensate for lag time in receiving the money.³⁶ Alternative instruments to cover buyers' reputational risk after 2012 could be agreed, e.g., insurance policy or any sanctions that the parties may write into the bilateral agreement.

5.19 The schedule and other terms of payments will be subject to negotiations. The Latvian government will need to weigh the option of accepting discounted prices proposed by buyers on advance payment against the option of the difficulty and cost of alternative sources of bridge finance to cover upfront investments.

5.20 The most prudent approach to early transactions might be forward contracts stipulating a small payment in advance of AAU delivery and then that AAUs are delivered in installments, payments are disbursed upon AAU delivery and achievement of agreed implementation milestones in greening programs, but before all greening projects yield full results.

³³ The put option is an option contract giving the seller the right, but not the obligation, to sell a specified amount of emission reductions at a specified price within a specified time.

³⁴ The call option is an option contract that gives the buyer the right, but not the obligation, to buy emission reductions at a specified price within a specific time period.

³⁵ The sweep option is an option contract in which if the project generates more than the agreed amount of emission reductions in a particular year, any additional emission reductions generated in that year shall be transferred to the buyer as a part of the contract emission reductions until the total quota of contract emission reductions to be transferred under the emission reductions purchase agreement has been fulfilled.

³⁶ Buyers may argue for a discounted price in order to accept AAUs with delivery of greening beyond 2012 taking into account the uncertainty of the Kyoto mechanism after 2012.

5.4. GREENING PRODUCTS IN AAU TRANSACTIONS

5.21 There are several ways to develop AAUs products for sale. Each transaction may consist of a specified volume of AAUs backed by one or more greening activities, as discussed above. They may be designed in distinct bundles and just like government bonds AAUs can be issued in series targeted at one or more buyers. Since every AAU will have its unique serial number in the national registry, in principle, it should be possible to “brand” AAUs by assigning different labels to different AAU series issued.

5.22 A product that makes an obvious link between AAU transfer and greening results is a GHG emissions reduction. Similar to JI projects, the amount of AAUs transferred would be matched to equal amount of emissions reduction of GHG in tons of CO₂ equivalents.

5.23 Linking AAU transfer with greening results is not always straightforward and interpretations vary among buyers. Examples are projects/programs that generate emissions reduction of GHG that are more difficult to measure and those that provide wider environmental benefits. Among the first group are the energy efficiency or renewable energy projects that shift to more efficient use of biomass for heating. This kind of project reduces GHG emission indirectly by enabling saved biomass to be used for other energy switch projects from fossil fuel to biomass in Latvia or other countries. This "positive leakage" cannot be monitored nor verified like traditional CDM/JI projects. Examples of the second category are projects that reduce emissions of local pollutants such as SO_x, NO_x, particulate matter, persistent organic pollutants, or volatile organic compounds (VOCs). Emission reductions of these pollutants can be measured and theoretically converted to carbon dioxide equivalents using conversion factors, such as the ratio of economic value of damages. Emissions reductions expressed in CO₂eq could be matched by AAUs transfers.

5.24 Environmental effects of other greening programs, such as capacity building, monitoring and verification, adaptation to climate change, or raising public awareness, are difficult to quantify. Qualitative monitoring and verification is possible using agreed indicators/benchmarks and reporting standards. In these cases, instead of linking quantitative environmental effect with AAU transfer, the AAU transfer amount could be determined by the financial needs of these activities. The incremental cost of a program divided by an AAU price could be alternative benchmarks for the exact amount of AAU transferred. Table 5 illustrates how the amount AAUs and corresponding funding transfers might be calculated under the GIS. More discussion on pricing AAUs can be found at the end of this chapter.

Table 5: Linkage between the GIS project components and greened AAUs

Greening programs	Estimated emission reductions (tCO ₂ eq)	Discount factor	Incremental cost of program (US\$)	Greened AAUs	Implicit AAU price (US\$/AAU)	Revenues (US\$)
Projects generating verifiable GHG emissions reduction (M)	50			50	10	500
Projects generating emissions reduction of local pollutants or GHG that are difficult to monitor or verify (NM1)	50	0.5		25	10	250
Programs that provide wider environmental benefits (NM2)	N.A.		100	10	10 ³⁷	100
Total (= M+NM1+NM2)				85		850

Note: All figures in this table are illustrative only.

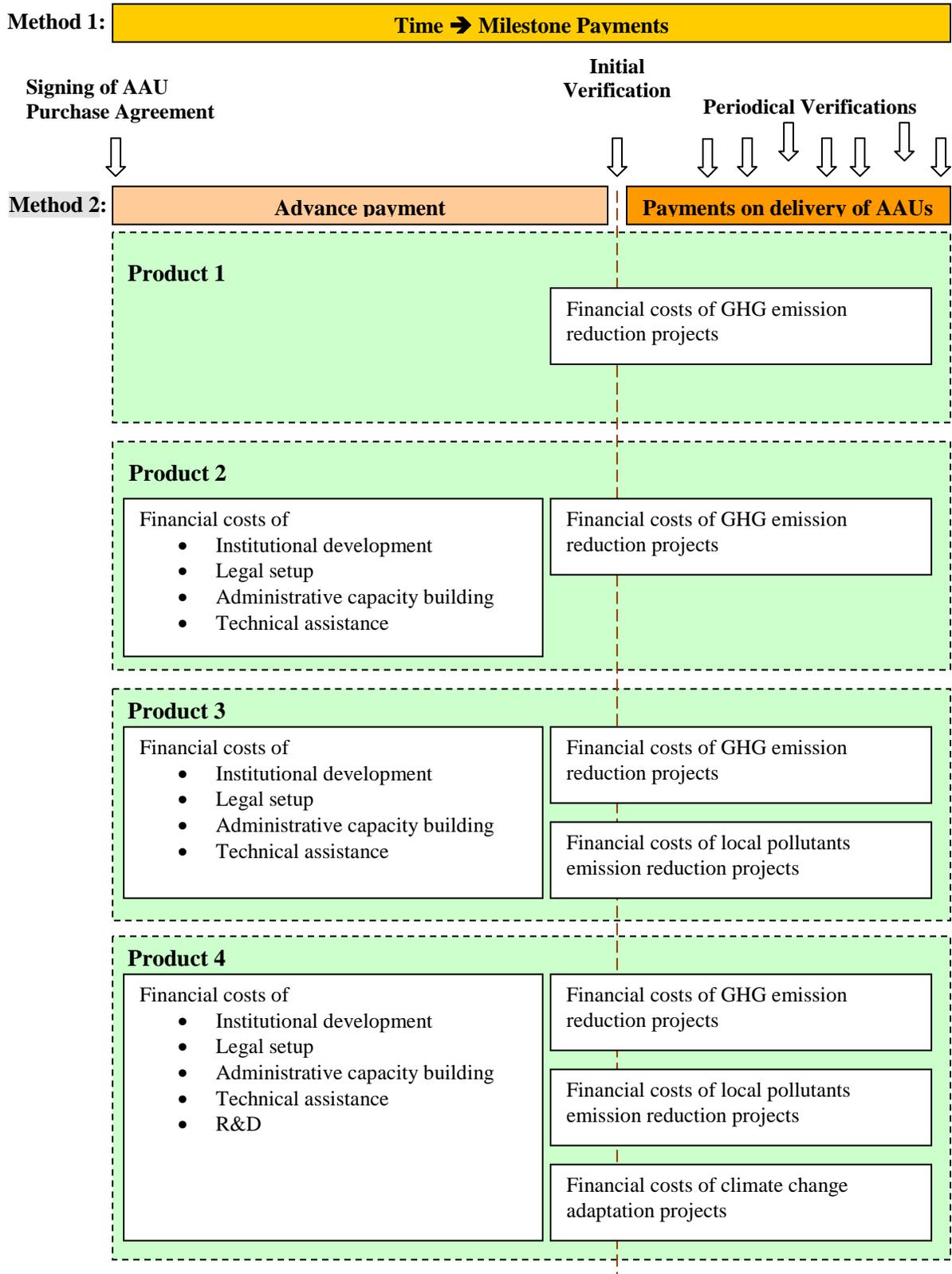
5.25 Buyers’ preferences may differ for greening projects and/or programs. Latvia could create various greening products for AAU offerings and introduce pricing structures that depend on combinations of projects and programs. Furthermore, Latvia could also design several payment structures. Figure 10 shows a matrix of four indicative AAU products and two possible payment methods.

5.26 For Product 1, buyers would purchase the amount of AAUs that matches the GHG emission reductions generated from the agreed projects. Revenues would be used only to finance these projects. Product 2 would contain a portfolio of specific investment projects and institution-building components, which are essential for GIS implementation. Accordingly, buyers would be asked to agree that some portion of AAU revenues would not generate immediate and measurable GHG emission reductions. The amount of AAUs transferred would be equivalent to the financial costs of the agreed institutional components divided by the agreed AAU price.

5.27 There are two payment methods: milestone payments in advance of emission reduction results (Method 1) and payment on delivery of verified emission reduction (Method 2), either is suitable for any AAU product.

³⁷ If Latvia chooses to auction AAUs, this price should be determined by Latvia in advance.

Figure 10: Indicative greening products and payment methods



5.28 The risk of a “you-get-what-you-pay-for” approach is that buyers’ demand (especially sovereign ones) may be price-inelastic. If buyers’ main concern is reputational risk, they may select only GHG emissions-reduction projects (Product 1 in Figure 10), leaving Latvia with most of its surplus unsold (Product 2-4). As will be discussed later, Latvia has limited opportunity to achieve cost-effective GHG emissions reduction in a realistic crediting period. If buyers “cherry pick” Latvia’s revenue from AAU trade could be reduced.

5.29 On the other hand, arguably without capacity and institutional building components (e.g., GIS management or environmental monitoring), GHG emissions reduction projects may be quite difficult to implement and verify in a timely manner. It is likely that some sovereign buyers would accept that AAU revenues are used to support such programs.

5.30 One way to mitigate these risks is to integrate several projects and programs that are relatively connected. Greening projects and programs can be combined to support the sale of a unified AAU series. For example, Latvia could present in one offering to many buyers a standardized series of AAUs with a single price linked to a single, but internally diverse basket of greening programs. This might also reduce transaction costs. Alternatively, Latvia may want to offer AAUs to individual buyers in distinct series (1-2 million in one), each supported by a balanced mix of projects and programs (Product 2 - 4 in Figure 10). The price of each series could differ, depending on factors such as overall credibility, environmental integrity, or share of emissions reduction projects with easily measurable results.

5.31 From the buyers’ viewpoint, the more flexible the “greening” the higher the reputational risk. Even buyers that have responded favorably to “soft-greening” have indicated that the allotment in a package of greening measures for capacity building and awareness raising would need to be relatively small. Therefore a single-basket approach might face low demand, leaving AAUs unsold or depressing the price of the whole offering if there is a program in the basket that is not acceptable to many buyers.

5.32 Another buyer concern might be how to secure delivery of the agreed amount of greened AAUs if some projects or programs are not be implemented. Latvia could ensure the total volume of greening through portfolio management so that non-performing greening projects and programs could be replaced by others that yield equivalent results.

5.33 Latvia's potential product differentiation strategy could be as follows:

- The pilot transaction could begin with an offering of a few AAUs (five to ten million tons) divided into two or three AAU series targeted at single buyers with one to three million AAUs per series.
- The single price/single basket approach could be tried first but if it fails, the portfolio of greening measures can be split into smaller baskets and linked to individual series offered to individual buyers according to their preferences. Baskets of greening measures must be transparent to buyers and to the public.

5.34 The basket of greening measures linked to the pilot transaction could contain:

- GHG emissions reduction and emission reductions of local pollutants that come from the same installations;
- climate change adaptation and mitigation that can be monitored and verified;
- GIS Fund capacity building;
- monitoring and verification of environmental effects of GIS; and
- TA components to assist project sponsors to prepare and present bankable project proposals.

5.35 The price linked to each basket could be decided through bilateral negotiations at the pilot transaction and, probably, auction at the following transactions, and could be influenced by the structure of underlying greening programs and projects. It will be important for buyers in pilot transaction to acknowledge that institutional components related to establishing of the GIS would be financed from AAU sale, because without them the GIS may not yield expected results. At subsequent transactions, a more diversified and larger product could be introduced.

5.5. PRICING OF AAUS

Price drivers

5.36 The AAU price will depend on the market (which does not yet exist), which will be dominated by few buyers—primarily sovereign governments—and as a small player, Latvia will be a price taker and will need to monitor the trading strategies of larger sellers. In particular Russia and Ukraine will significantly influence AAU prices. Other influences on the price will be expectations regarding the non-compliance gap by EU15, Canada and Japan; willingness of these countries to use flexible mechanisms of the Kyoto Protocol; the potential delivery of compliance instruments by JI and CDM mechanisms; and prices of these carbon credits.

5.37 Several factors may drive up Latvia's AAU prices: (a) low risk of non-delivery of AAUs (robust estimate of surplus, progress in compliance with Kyoto eligibility requirements, effective implementation of EU climate policy including EU ETS); (b) low reputational risk (strong political commitment to the GIS approach in AAU trade, commitment to transparency and accountability, high international credibility); (c) low-cost transactions; (d) flexibility and adaptability to buyers' preferences (small country, sophisticated and effective public and private sectors institutions); and (e) lower sovereign risk than other AAU suppliers.

5.38 Latvia's ability to establish a transparent, accountable, and credible GIS and successfully carry out an early pilot transaction will signal to the carbon market that Latvian AAUs are reliable and politically acceptable compliance instrument under the Kyoto Protocol. In fact an early successful transaction could establish "Latvian AAUs" as a brand, possibly leading to a premium in subsequent transactions and on the top of the AAU host country ratings. (At the time of writing Latvia has not been rated yet (Table 6).

Table 6: AAU Host Country Ratings (as of 23 June 2006)

Country	Rating (AAUs)
Czech Rep.	B+
Romania	B
Slovakia	B
Bulgaria	B-
Ukraine	B-
Estonia	CC+
Poland	CCC
Hungary	CCC
Russia	CCC

Source: Point Carbon. Their ratings are based on several factors such as, volume of AAU surplus, progress in compliance with Kyoto eligibility requirements, governmental position on AAU trading, progress in preparing a GIS, and availability of appropriate projects under the GIS.

Mechanisms to select buyers and set prices

5.39 Regardless of the modalities of transaction, the transaction mechanism should be accountable, efficient, and practical. Latvia must address the following questions before selecting a transaction mechanism—auction or direct negotiation—for AAU trade.

- What volume of AAUs is offered?
- How many buyers are targeted?
- Will buyers likely be governments or authorized private entities?
- How is AAU transfer linked to implementation of greening measures?

5.40 Depending on answers to these questions, two main transaction mechanisms might be applied: auction or direct negotiations.

5.41 Auction is generally the more efficient and transparent (hence accountable) mechanism to reveal buyers' willingness to pay for a novel commodity. Auction may be more acceptable politically to Latvia's national constituencies as a transparent pricing mechanism. Possible models of auction are presented in Annex 10.

5.42 However, there are several issues that need to be considered for auction to fulfill its promise. First, if potential buyers are numerous, auction makes more sense, however as of 2006, not many buyers are ready to purchase AAUs and few governments have allocated funds. Buyers' trading strategies are emerging slowly, although this may change from 2007 onwards. On the other hand, private entities, authorized by the sovereign governments, could, in principle, increase the number of potential buyers, strengthening the case for auction.

5.43 Second, Latvia would face a higher payment risk with private buyers even if they can potentially offer higher prices and are less risk-averse than sovereign governments. To reduce payment risk, Latvia may have to incur additional work and money to conduct due diligence of private buyers' credibility. If necessary, a stand-by letter of credit covering the full repayment period or guarantees could be considered.

5.44 Third, some sovereign buyers may be unwilling to engage in competitive bidding, in particular at early stages of AAU trading with so many uncertainties and risks, including "reputational risk." Officials may find it difficult to obtain a flexible mandate from their authorities, such as Ministry of Finance, and parliament, and may find it difficult to explain their choices ex-post to domestic constituencies.

5.45 Fourth, internally heterogeneous AAU products (e.g., supported by diverse greening measures) may be difficult to auction if potential buyers' requirements for "greening" differ. In this case, bilateral negotiations (also with several buyers) could incorporate buyers' preferences into a transaction and pricing structure, and branding products of AAU transactions may facilitate auctions in future.

5.46 In some auction models, Latvia will need to establish what constitutes a fair price. Latvia may want to set the floor price, or apply a fixed-price auction. Moreover, Latvia also needs to set the implicit AAU price applicable to programs that provide wider environmental benefits, as explained above.

5.47 Accordingly, Latvia may even find it more efficient to enter into direct negotiations with selected sovereign government(s), at least for the pilot transaction. Some sovereign buyers have indicated their preference for direct negotiations, while others are concerned about the accountability and credibility of this approach.

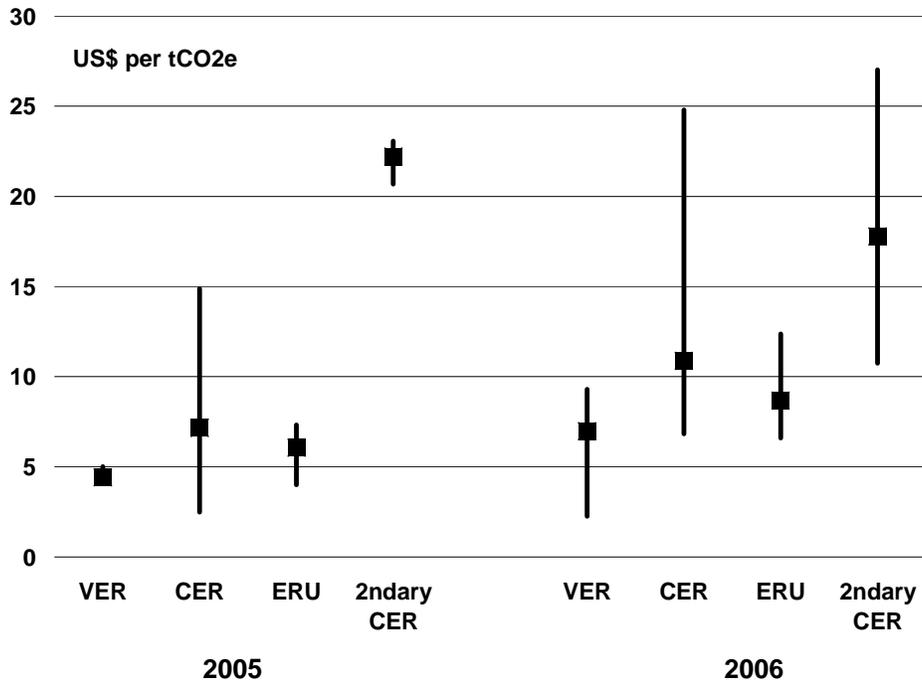
5.48 The volume of each transaction would also influence Latvia's choice of mechanism. For small volumes of homogeneously greened AAUs auction might be easier and low risk for both Latvia and buyers to determine the market price. If one buyer is likely to take all AAUs from an offering, a simple and efficient "e-Bay" type of auction would be possible. For larger amounts of AAUs, auction models will have to be more complex (see more detailed discussion on auction models in Annex 10). A mixture of various greening measures, including a significant share of non-GHG emissions reduction projects may introduce additional complexity into pricing of AAU series. Early consultations with potential buyers would help mitigate this risk.

5.49 It will be important to adjust a choice of transaction mechanism to the practicalities and political economy of AAU trading. Simple and low-risk approaches could be better choices for pilot transactions. Latvia may find it more efficient to begin trading using bilateral negotiations with sovereign government(s). Or Latvia could develop a hybrid approach—send an invitation for expression of interest and submission of indicative price to buyers and invite those who qualify for negotiations. To decrease transaction costs, Latvia may want to organize joint (roundtable) negotiations of the greening terms and one-to-one negotiations of commercial terms (including price and payment schedules). When Latvia develops market credibility and the rules of the game are clarified, it can apply more sophisticated transaction methods and large-scale transactions to maximize revenue and minimize transaction costs.

5.50 **Indexing AAU price** (i.e., linking to the price of a basket of other Kyoto commodities, with more mature markets) is possible, regardless of the transaction mechanism, but difficult due to limited fungibility for other Kyoto commodities. As discussed earlier, due to EU segmentation of the carbon market, it could be misleading to link the price of AAUs to that of EU Emissions Allowances, because AAUs cannot be used for compliance and traded on EU ETS. Indexing to ERU and CER price is more reasonable, but can be misleading because AAUs can substitute for project-based Kyoto commodities for some compliance purposes, but not for all (e.g., not for compliance under EU ETS). Lack of demand from European companies drag the AAU price down, but Japanese private industries could seek AAUs, like ERUs and CERs, for their compliance with voluntary emission reduction targets. Another tricky aspect of indexing to ERUs and CERs is that the market differentiates between CDM and JI as of the first half of 2006. For 2005 and the first three months of 2006, ERUs were contracted at average price of US\$5.51 per tCO₂eq, while CERs for US\$7.51, due to, e.g., the perceived lack of clarity in JI's institutional

framework, involving regulatory and sovereign risks³⁸ (Figure 11). Some market buyers expect that this gap should close relatively quickly in 2006 with JI projects under negotiation receiving prices close to the range of CMD projects. They also expect that AAU price may be indexed to ERU prices, mainly because they know in some JI transactions, where “early emission reductions” generated by JI projects has already been credited by forward purchase of AAUs. This makes it rational to use the ERU price as a benchmark for AAU at least in the pilot transaction.

**Figure 11: Observed prices for project-based transactions 2005 and 2006
(in US\$ tCO₂eq)**



Source: “State and Trends of the Carbon Market 2006,” the World Bank

5.51 The risk profile of AAUs may drive the price either up or down against the ERU benchmark. Reputational risk is higher than that of ERUs (and CERs), while project risk is equal or lower, and methodology risk is lower. The risk of delivering Kyoto compliance instruments also seems lower because it is not fully dependent on project risk, rather on country ability to meet general eligibility criteria to trade. One area of uncertainty is the relationship between ERUs generated through JI Track 1 and AAUs. Some presume that these ERU prices will be higher than AAUs, because ERUs are used as a compliance tool under the EU ETS, while AAUs are not. On the other hand, AAUs generated through the GIS could be perceived as more credible and transparent than First Track of JI, if it was based on relaxed national requirements (Table 7).

³⁸ “State and Trends of the Carbon Market 2006” the World Bank, Washington DC, May 2006.

Table 7: Factors influencing perception of AAU price against ERU benchmark

Factor	Pressure on AAU price versus ERU	Description	Risk assessment
Kyoto Regulatory Risk	↑	Host Country regulatory risk; methodology risk; determination risk; monitoring and verification risk, issuance of ERUs/AAUs risk, etc.	AAU risk seems to be equal or lower than ERUs because AAUs are valid for compliance immediately if accepted by ITL (no international boards, validation, determination, etc.) BUT eligibility criteria to transfer AAUs are more difficult than for JI Track 2.
Reputational Risk	↓	Risk that reputation of one of the carbon trade parties may be damaged because transaction revenues are not used to support environmental projects and programs; or that transparency, accountability, and efficiency in the use of the revenues is impaired. Risk of negative social or environmental impacts, etc.	AAU risk seems to be higher than that of ERUs from JI Track 2 because there are no legal requirements for independent validation and verification of emission reductions from projects. Risk can be similar to JI Track 1.
Project Risk	↑	Host Country risk, risk of delayed construction; Risk of underperformance after completion of construction;	AAUs risk seems lower than that of ERUs because validity of AAUs for compliance by parties is not dependent on performance of specific projects.
Demand	↓	The Linking Directive (Directive 2004/101/EC) allows operators of the EU ETS installations to use CERs and ERUs for compliance, while AAUs are excluded.	Global demand for AAUs will be lower than for ERUs, unless sovereign buyers and Japanese private buyers prefer AAUs, which is unlikely.

5.52 **Hedging against AAU price volatility.** Under current circumstances, hedging aims to fix the price during the negotiations and use it as long as AAU purchase agreements are effective. Setting minimum, maximum, or both prices, or introducing price indexation could mitigate price volatility risk, albeit not without problems, as discussed earlier. Also, the guaranteed minimum amount of AAUs can be sold and purchased at a guaranteed price and those remaining can be transacted at indexation system or market price, if one exists.

6. LEGAL AND REGULATORY ISSUES

6.1 This chapter analyzes key legal issues that Ministry of the Environment may need to consider in developing a robust legal framework for international emissions trading (IET) under the Latvian law and in compliance with relevant international laws.

6.1. LEGAL FRAMEWORK FOR A GREEN INVESTMENT SCHEME

6.2 Latvia must consider at least three legal systems when designing a Green Investment Scheme (GIS): public international law, European law, and Latvian law. The general description of existing international legal framework and a list of relevant laws and regulations are presented in Annex 3. This chapter will focus on the implications for Latvia's participation in international emissions trading.

Public international law

6.3 Under public international law emissions trading is regulated by Article 17 of the Kyoto Protocol. Accordingly, Annex B countries with commitments to reduce their greenhouse gas emissions can participate in emissions trading provided that such trading is supplemental to domestic action and they fulfill the eligibility criteria. They can also authorize legal entities to participate in emissions trading and to transfer and acquire AAUs. More details on existing public international legal framework for IET can be found in Annex 3.

European law

6.4 Latvian membership in the European Union binds the country to European law. When designing a GIS, Latvia will need to take into account instruments of European law, including: (a) EU ETS Directive 2003/87/EC together with a body of Commission's decisions and guidelines; (b) Directive 2004/101/EC, commonly known as the "Linking Directive," which opens the EU ETS to the Kyoto Protocol's project-based mechanisms (JI and CDM); (c) European Community state aid rules and regulations; and (d) legal instruments that lay down obligations to undertake various climate mitigation measures. Detailed lists are found in Annex 3.

Latvian law

6.5 At the Latvian national level, the existing legal framework consists of the Law on the United Nations Framework Convention on Climate Change (23 February 1995) and the Law on the Kyoto Protocol to the United Nations Framework Convention on Climate Change (30 May 2002) with amendments of 15 September 2005.

6.6 Based on the amendment to the Law on the Kyoto Protocol to the United Nations Framework Convention on Climate Change, the Cabinet of Ministers has also approved the Regulations on the Execution of Mechanisms of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and Actions Related to Allocation and Use of

Emission Reduction Units, Certified Emission Reduction units, Removal Units and Assigned Amount Units of 7 February 2006 No.115.³⁹ These and other key relevant legal acts are listed in Box 5.

Box 5: Latvian laws and regulations relevant to GIS

- Law on the United Nations Framework Convention on Climate Change of 23.02.1995;
- Law on the Kyoto Protocol to the United Nations Framework Convention on Climate Change of 30.05.2002;
- Law on Pollution [*Likums par piesārņojumu*] of 15.03.2001;⁴⁰
- Civil Code [*Civillikums*] of 28.01.1937;
- Law on the Sale of State and Municipal Property [*Valsts un pašvaldību mantas atsavināšanas likums*] of 31.10.2002;
- Law on Value Added Tax [*Likums par pievienotās vērtības nodokli*] of 09.03.1995;
- Regulations on Order for Carrying out Actions with Emission Allowances and Establishing Pools of Installations [*Kārtība, kādā notiek darbības ar emisijas kvotām un tiek veidoti iekārtu kopfondi*] of 03.08.2004;
- Law on International Treaties [*Likums par Latvijas Republikas starptautiskajiem līgumiem*] 13.01.1994;
- Statute of Ministry of the Environment of Republic of Latvia [*Vides ministrijas nolikums*] 06.01.2004;
- Law on Budget and Financial Management [*Likums par budžetu un finanšu vadību*] 24.03.1994;
- Statute of the Treasury [*Valsts kases nolikums*] of 03.08.2004; and
- Law on Structure of State Administration [*Valsts pārvaldes iekārtas likums*] of 06.06.2002.

6.7 The Latvian Cabinet of Ministers approved a “*Concept Note on International Emissions Trading*” on 12 April 2006. The Concept Note identifies the need for new legislation on emissions trading under Article 17 of the Kyoto Protocol and the establishment of the GIS. It indicates that the following legal documents should be developed by Ministry of the Environment and submitted to the Cabinet of Ministers:

- by 30 June 2006 – a draft law “*Amendments to the Law “On the Kyoto Protocol of the United Nations Framework Convention on Climate Change”*”;⁴¹
- by 30 June 2006 – a *draft order on amendments to the “Climate Change Mitigation Programme 2005–2010*; and
- by 30 March 2007 – *draft regulations on the procedures of implementing international emissions trading in Latvia*.

6.8 Latvia would have three options for introducing a legislative framework to participate in international emissions trading and to implement a GIS:

- Amend the *Law on the Kyoto Protocol* as foreseen by the Concept Note on Emissions Trading;
- Amend the *Law on Pollution* and other existing laws; or
- Create a new law for international emissions trading and a Green Investment Scheme.

³⁹ This regulation outlines the procedures for implementing JI procedures in Latvia, and it also transposes the requirements of the Linking Directive into the Latvian national legal system.

⁴⁰ This law was adopted on 15 March 2001 with amendments adopted by Saeima (Parliament of Republic of Latvia). The Law on Pollution sets the basis for integrated environmental permitting harmonized with the IPPC Directive for industrial pollution.

⁴¹ This may change in favour of new law or amendment to Law on Pollution.

6.9 The *Law on the Kyoto Protocol* is essentially a ratification law incorporating the Kyoto Protocol into the Latvian legal system and it does not currently contain much substance. The amendment would, therefore, need to radically change the nature of this law. The *Law on Pollution* contains provisions on the EU ETS and European emission allowances, so from this perspective it might be justified to address international emissions trading under this law as well. However, the establishment of a Green Investment Scheme in Latvia would require provisions that do not fit easily under the existing Law on Pollution, such as special budgetary arrangements for AAU revenues. Therefore, the option of enacting an entirely new law would seem to be most justified from the perspective of the Latvian national legal system. It would also be the most transparent choice from the perspective of buyers seeking information on the Latvian GIS.

6.10 In September 2006, the Concept Note was amended and now stipulates that instead of adopting an amendment to the Law on the Kyoto Protocol, an entirely new law on emissions trading would be passed.

6.11 At a minimum the following issues would seem to require new legislation in Latvia:

- Ownership of AAUs;
- Authorisation to make decisions regarding the sale of AAUs, including price and specific conditions;
- Authorisation for the relevant ministries to prepare for the sale of AAUs, including participation in negotiations and drafting AAU Purchase agreements;
- Authorisation for the approval and signing of AAU Purchase agreements;
- Principles for using the revenues from the sale of AAUs, including a clear provision on earmarking all income from the sale of AAUs for specific environmental purposes;
- Special budgetary arrangements, including a separate budget program, a special account in the Treasury and carry-over provisions;
- Responsibility for implementing the greening obligations contained in the AAU Purchase agreements, including the role of the agency managing the GIS, principles for environmental and financial monitoring, verification and reporting, provisions for supervisory function (representation by relevant stakeholders); and
- Delegation of authority to the Cabinet of Ministers to pass executive regulations on the implementation of international emissions trading and a GIS.

6.12 Most of these issues will be discussed in detail below. Legal issues relating to institutional arrangements and environmental monitoring, verification and reporting will be discussed in Chapters 9 and 11.

6.2. LEGAL STATUS AND OWNERSHIP OF AAUS

Legal Status of AAUs:

6.13 Internationally, the legal nature of the emissions units, including AAUs, created by the Kyoto Protocol has not been exhaustively defined.⁴² This means that the legal status of assigned amount units partly depends on the laws and regulations in force in each national legal system.⁴³ Their treatment, for instance, for accounting and tax purposes differs from country to country. The lack of exhaustive legal definition of AAUs should not pose any serious obstacles to their

⁴² The same applies to the emissions allowances, "EUAs," created under the EU ETS.

⁴³ See *Background Paper for the International Workshop on the Legal Nature of Emissions Reductions* by FIELD, at <http://www.field.org.uk/climatengr_past.php>.

trading and creation of a GIS for Latvia, as long as their treatment under the relevant international, European, and Latvian national laws is adequately considered. The text below outlines the most relevant considerations under each legal system:

6.14 **International Law:** Under the Kyoto Protocol, AAUs are defined as registry units, equivalent to one metric ton of carbon dioxide equivalent.

6.15 States that are Parties to the Kyoto Protocol can transfer and acquire AAUs following the conditions outlined in Article 17 and the relevant COP/MOP decisions. They can also authorize private entities to participate in emissions trading.

6.16 According to the Marrakesh Accords, “the Kyoto Protocol has not created or bestowed any right, title or entitlement to of any kind on Annex I Parties with a commitment inscribed in Annex B of the Kyoto Protocol.”⁴⁴ This statement reflects the political context, in which the Kyoto Protocol was negotiated: it means that the Protocol has not created any emissions rights to Annex I Parties beyond 2012, nor has it solved such long-standing debates, such as the distribution of global emissions allowances on a per capita or some other principled basis. The Marrakesh Accords do not, however, prevent the treatment of AAUs as property rights under national legal systems. The specific case of treatment of AAU trade under the WTO trade rules is discussed in Box 6.

Box 6: Treatment of AAUs under the WTO trade rules

The World Trade Organization’s (WTO) international trade rules and WTO Agreements are unclear in their treatment of AAU trading under the Kyoto Protocol. Neither is it clear whether AAUs should be characterized as goods or services, and whether they fall under the *General Agreement on Tariffs and Trade* (GATT) or the *General Agreement on Trade in Services* (GATS), or whether they are not directly covered by WTO rules. Other possibly relevant WTO Agreements include the *Agreement on Subsidies and Countervailing Measures*. Discussion about the relationship between emissions trading under Article 17 of the Kyoto Protocol and WTO rules remains fairly abstract and academic. Some concerns have been raised regarding the compatibility of the two systems. For instance, placing quantitative limits on allowances or limiting the import of emission allowances from non-Kyoto Parties might be viewed as trade restrictions that violate WTO rules. However, one expert has stated: “It has been argued that Kyoto Protocol internationally-traded emissions allowances themselves are neither ‘products’ or ‘services’ and thus the regulation of trade in allowances would not be directly governed by WTO rules.”⁴⁵ Many experts agree that emissions trading under the Kyoto Protocol is fully compatible with WTO Agreements. For instance, one study concludes that “...the greenhouse gas emissions-reduction responsibilities and emissions trading rights established by the Kyoto Protocol do not conflict in any way with the responsibilities and rights of the nations under the WTO Agreements governing trade in goods, services, and the provision of subsidies.”⁴⁶ Ruling on this is only possible if a WTO member state issues a challenge through the WTO dispute settlement system, which would likely take several years.

⁴⁴ This statement can be found in the preamble of the Decision on the principles, nature and scope of the mechanisms pursuant to Articles, 6, 12 and 17 of the Kyoto Protocol. (FCCC/KP/CMP/2005/3/Add.3).

⁴⁵ “Background Paper for the International Workshop on the Legal Nature of Emissions Reductions, 25-26 May 2004, London” by the Foundation for International Environmental Law and Development (FIELD). Available at http://www.field.org.uk/climatenrg_past.php.

⁴⁶ Anne Petsonk, “*The Kyoto Protocol and the WTO: integrating greenhouse gas emissions allowance trading into the global market place*” *Duke Environmental & Policy Forum*, Vol. 10:185 (1999). http://www.environmentaldefense.org/documents/706_WTOKyoto.pdf.

6.17 **European Law:** AAUs are mentioned in the preamble of the EC Emissions Trading Directive, which provides that between 2008 and 2012, “transfers of allowances to another Member State will involve corresponding adjustments of assigned amount units under the Kyoto Protocol.” This is the only explicit reference to AAUs under the EU ETS, and it should be duly considered by Latvia in the context of implementing the EU ETS and preparing the second National Allocation Plan.

6.18 Also the Investment Services Directive, the VAT Directive and EC Public Procurement rules, such as Directive 2004/17/EC, regulate some aspects of emissions allowances under EU ETS. These directives do not, however, exhaustively define their legal nature. Furthermore, they do not seem to pose any constraints on Latvia’s ability to sell its surplus AAUs under Article 17 of the Kyoto Protocol.

6.19 **Latvian Law:** Latvian law does not define emissions allowances; their legal status depends on context. For instance, the *Law on Pollution* transposes the EU Emissions Trading Directive and contains provisions on the allocation, surrender and sale of EU emissions allowances under the EU ETS. EU emissions allowances are also subject to VAT in Latvia (in line with EU guidelines on application of directive 77/388/EEC to the EU ETS) as well as to income/corporate tax. (Box 7).

Box 7: Treatment of EU emission allowances under Latvian Law

According to Articles 927, 929, 1036, 1037 and 2005 of the Latvian *Civil Code* and Article 32.3, paragraph 5 of *Law on Pollution*, trade in emissions allowances means transferring rights to emit a given amount of greenhouse effect gas into atmosphere. Furthermore, the laws state that AAUs, CERs, ERUs and RMUs are subject to property rights and their owner is entitled to dispose of them, including selling them. For example, Paragraph 5 of Article 32.3 of “*Law on Pollution*” stipulates that “any legal entity or individual person can be an owner of the emission allowance, and that “the person who owns emission allowances may without restriction transfer such allowances to other persons.” This is consistent with regulations of Cabinet of Ministers of Republic of Latvia No.115 “*On execution of project-based mechanisms of the Kyoto Protocol of the UNFCCC and actions related to allocation and use of emission reduction units, certified emission reduction units, removal units and assigned amount units*” (Part V article 46 and article 48).

European emission allowances possess certain special characteristics. According to the *Law on Pollution*, Ministry of the Environment takes decisions regarding the granting of emission allowances to an operator who has obtained a greenhouse gas emission permit. These allowances “shall be valid for the time period for which it is issued.” Each year the operator must surrender to the Latvian Environmental, Geology and Meteorology Agency emissions allowances corresponding to the plant’s greenhouse gas emissions during the previous calendar year.

These characteristics are relevant to the exercise of owners’ rights defined in the *Latvian Civil Code*, which contains general provisions regarding ownership and rights of owners to dispose of their property. According to Section 2005, “*the subject matter of a purchase contract may be all property that it is permitted and possible to alienate, meaning thereby not only tangible property, but also property rights and obligations rights.*” Section 929 also provides that “*the subject-matter of ownership may be anything that is not specifically withdrawn from general circulation by law.*”

Sections 927, 1036 and 1037 of the *Latvian Civil Code* are also relevant for characterising ownership. Accordingly, ownership means the full right of control over property, including the right to possess and use the property, obtain all possible benefits from it, dispose of it and, in accordance with prescribed procedures, claim its return from any third person. In other words, ownership gives the full right of control over a property to the owner, and insofar as the right is not subject to specific restrictions, owners may dispose of their property including selling or otherwise transferring it.

The legal nature of emission allowances and the rights attached to them under Latvian legislation do not depend on the legal identity of the buyers—i.e., whether they are private legal entities or government agencies.

The legal status of emission allowances is also determined by the *Law on Value Added Tax*. Accordingly, trade in emission allowances is to be understood as a “service” provided by the seller and value-added tax should be applied to those “services.” Provisions of the *Law on Value Added Tax* also appear to support the view that under Latvian law, emission allowances are intangible property rights or rights allocated to the owner to undertake certain actions (i.e., to emit a certain amount of greenhouse effect gas into atmosphere). Under Latvian accounting laws, emission allowances are treated as intangible long-term assets and as such are reflected in the balance sheet. They are not depreciated but must be written off when used or expired. In both cases their purchase value is considered an expenditure that decreases profit.

6.20 This preliminary analysis suggests that emission allowances under the Latvian legal system have many characteristics that can be associated with property rights and that they can be sold and transferred by the owner. At the same time, emission allowances also have some special features: they are created by regulations, and issued by a public authority for a specific time period. Original holders (e.g., operators of installations under the EU ETS), are obliged to surrender emission allowances corresponding to their annual greenhouse gas emissions.

Ownership of AAUs in Latvia:

6.21 The Latvian national legislation currently in force has no explicit provision on the ownership and the right to sell AAUs (see discussions, Box 8), but the prevailing view is that AAUs belong to the state. The justification is that international emissions trading relates to the implementation of the Kyoto Protocol, which has created AAUs and other registry units. The AAUs are assigned to Latvia for 2008-2012 under the Kyoto Protocol. The Latvian government must ensure that Latvia does not exceed its Assigned Amount, and can decide what to do with surplus AAUs. Moreover, emissions trading under the Kyoto Protocol is only possible if the government takes steps to fulfill the eligibility criteria. Only then the government can authorize private companies participation.

Box 8: Is AAU trade governed by the *Law on the Sale of State and Municipal Belongings*?

In accordance with a definition in Paragraph 1 of this law, state or municipal belongings are “belongings located in state or municipal institution’s, agency’s or capital company possession or holding.” Several exceptions are listed under Paragraph 2, which indicates that the “law should not be applied to the sale of state or municipal property rights, e.g., securities, shares in capital companies and likely, the alienation of those is prescribed with other laws.” AAUs do not seem to fit under the definition included in Paragraph 1, and they rather resemble the exceptions listed under Section 2. Therefore it appears that the sale of AAUs is *not* covered by *Law on the Sale of State and Municipal Belongings* (property), and the procedures defined under this law are not applicable to the sale of AAUs. As there are no other laws in Latvia dealing with the sale of state property, it would seem that the procedures for the sale of AAUs can be freely defined from the Latvian side, including the organization of tenders or bilateral negotiations. This argues in favor of a new legal basis on which to regulate the sale of AAUs. However, the principle set forth in Paragraph 3, *On Prevention of Squandering of the Financial Resources and Property of the State and Local Governments* that all state property must be sold at the highest possible price, must be honoured.⁴⁷

6.22 This view is also reflected in the provisions of the *Law on Pollution*, which, *inter alia*, transposes the EC Emissions Trading Directive. Accordingly, Ministry of the Environment is appointed to take all necessary steps regarding European emissions allowances. The Ministry, also taking into account the views of the public and the National Allocation Plan approved by the European Commission, shall make decisions regarding the granting of European emission allowances to an operator that has obtained a greenhouse gas emission permit, as mentioned above.

6.23 AAUs cannot be defined as belonging in the “classical” meaning of the notion (in accordance with provisions of Part Three “Property” of the *Civil Code*) and the *Law on the Sale of State and Municipal Property* does not apply to international emissions trading;

6.24 While it seems justified to conclude that the Latvian government owns AAUs and has the right to make decisions on selling any surplus AAUs, this could be explicitly stated in the amendment to the existing laws (e.g., *Law on the Kyoto Protocol* or *Law on Pollution*) or in a

⁴⁷ Section 3: Duty to Administer Rationally the Financial Resources and Property of the State and Local Governments. Local governments, State and local government institutions, undertakings and incorporated companies, as well as companies, in which the State or local government share of the equity capital separately or combined exceeds 50 percent, shall administer the financial resources and property rationally, meaning that: (a) actions shall be such as to achieve objectives with the minimum use of financial resources and property; (b) property shall be alienated or transferred to the ownership or possession of another person at the highest price possible; and (c) the ownership or possession of property shall be acquired for the lowest price possible.

possible new law on emissions trading, which would make the legal basis more transparent and ease potential buyers' concerns in this regard.⁴⁸

6.3. TYPES OF AAU PURCHASE AGREEMENTS

6.25 When trading AAUs under Article 17 of the Kyoto Protocol, the rights and obligations of the buyer and the seller will be defined in a legal instrument, hereafter called an "AAU Purchase Agreement" (Box 9).

Box 9: Key Terms of an AAU Purchase Agreement

The terms of a typical agreement can be grouped into the following categories:

1. Preamble
2. General definitions
3. Specifications of what is being sold and when
4. The amount of AAUs to be transferred from Latvia to the buyer; a timetable
5. Purchase price and payments, including possible advance payments (see the section on Transaction structures for options for linking payments and delivery of AAUs)
6. Terms and conditions relating to the use of AAU revenues
7. For instance, a general provision whereby Latvia commits to spend all revenues from the sale of AAUs as agreed with the buyer, followed by a more specific definition of the acceptable greening activities
8. The contract could also include an annex with an indicative list of approved projects and activities, the list could be amended by exchanging letters; depending on how deeply the buyer wants to be involved
9. Monitoring, reporting and possible independent verification requirements as agreed between the buyer and seller
10. Other obligations
11. Events of default and remedies
12. Force Majeure
13. Exchange of information and disclosure
14. Settlement of disputes (e.g., arbitration)
15. Applicable law, in case of a private international contract
16. [Waiver of immunity in case of a private international contract]
17. Amendment and other general provisions.

6.26 From the legal perspective, there are two main types of AAU Purchase agreements (see also Box 10):

- Agreements concluded under public international law, between Latvia and the buyer country or an international organization; or
- Agreements concluded under private international law, between a competent Latvian legal entity (such as Ministry of the Environment) and a legal entity from the buyer country that poses legal personality and represents a competent government institution, or a foreign company.

⁴⁸ Direct allocation of AAUs to enterprises and/or other stakeholders has not been studied in this report due to several potential constraints, e.g., EU state aid rules.

Box 10: Generic differences between public and private international laws

Public international law refers to the body of law consisting, *inter alia*, of treaties, customary rules and general principles that govern relations between states and international organizations, such as the United Nations and its specialised agencies. In principle, only states and certain international organizations have legal status under public international law that enables them to make valid treaties and international agreements.⁴⁹ Therefore AAU purchase agreements under public international law would be possible only when buyers are governments or international organizations.

Private international law is not a separate legal system. It addresses questions about which national legal system should be applied to an international situation, which courts have jurisdiction over the contract, potential disputes, and international enforcement. In many cases, including international emissions trading, the contracting parties may choose the applicable law and their preferred dispute settlement method. If no explicit choice has been made, the judges or arbitrators can decide (also called “conflict of laws” or “international private law”).

6.27 Private international law must be used for AAU purchase agreements when buyers are foreign companies. While public international law would seem a “natural choice” for agreements between two states, both options could be used with state buyers. Should Latvia and the state buyer choose private international law, they could enter a legal agreement through competent legal entities, ministries for example, provided they have a legal status.

6.28 For the purposes of international emissions trading, some of the key differences between a private international agreement and an agreement concluded under public international law include:

Approval: In the context of the Kyoto mechanisms, some buyers argued that under public international law, agreements require a lengthy and complicated approval process, often involving national parliaments. Whether parliamentary approval is required for an AAU purchase agreement can only be assessed on a case-by-case basis, taking national legislation into account. Approval procedures could be similar in Latvia for private and public international law agreements if it is possible under public law to delegate the Cabinet of Ministers the authority to approve AAU Purchase agreements without the involvement of the Saeima (Parliament). The next section discusses this issue in the context of the Latvian legal system. For AAU Purchase agreements concluded under public international law the involvement of the buyer’s national parliament might still be necessary.

Enforcement: In Latvia public international law agreements once in force are as strong as national laws. In the case of private international agreements, enforcement of foreign judgements and arbitral awards is not automatic, but these issues can be clarified during the negotiation phase. In Latvia, the enforcement of foreign judgements is regulated under Chapter 77, and the enforcement of foreign arbitral awards under Chapter 78 of the *Law on Civil Procedure*.

Applicable Law: In the case of public international law, basic questions such as the validity and interpretation of the AAU Purchase Agreement would be assessed in light of the relevant rules of public international law, such as the Vienna Convention on the Law of Treaties, which is applicable between parties and also codifies many of the existing customary norms. In the case of private international law, the applicable national legal system, Latvian or

⁴⁹ The question as to whether an international organization has a legal personality can be explicitly indicating in its constituent treaty. Otherwise, there are some general criteria developed, by the International Court of Justice in the case concerning *Reparations for Injuries Suffered in the Service of the United Nations*. See ICJ Reports (1949), 174.

foreign, should be determined during the negotiations. In principle, the question could also be left open but it provides more legal certainty for both parties to agree on it upfront. Nothing in Latvian national legislation would prevent Ministries from concluding private law contracts that fall under other than the Latvian national legal system and/or would restrict the choice of dispute settlement methods.

Substance: In terms of substance, there could be few differences between public and private international law AAU Purchase agreements. For instance, if some model contracts were developed for international emissions trading, any two states could agree to use a slightly modified version of such a contract when concluding an AAU Purchase Agreement under public international law. However, under private international law the agreement should always be checked against the applicable national legal system to ensure that it contain only provisions that are valid under the legal system.

6.29 Nothing in Latvian legislation prevents the Latvian government from also concluding AAU purchase agreements under public international law with government buyers that prefer this option. It would be advisable to leave both options open and select in consultation with government buyers.

6.4. AUTHORITY FOR AAU PURCHASE AGREEMENTS

6.30 Existing national laws in Latvia do not regulate Latvia's participation in emissions trading under Article 17 of the Kyoto Protocol and no national institution has been explicitly authorized to make decisions in this regard.⁵⁰

6.31 When establishing the GIS, it would seem necessary to delegate decision making responsibility regarding emissions trading, for issues including specifying the price and AAU transaction conditions, participating in negotiations, drafting and concluding AAU Purchase agreements.

6.32 According to plans by Ministry of the Environment, the new law would authorize the Cabinet of Ministers to make decisions on emissions trading, including negotiating the price of AAUs and specific conditions, while the Ministry of the Environment and the Ministry of Finance would prepare and carry out individual AAU transactions.

6.33 Approval of AAU Purchase agreements can be concluded either under public international law or private international law. Approval of international treaties is regulated by the *Law on International Treaties of the Republic of Latvia*. This law would apply to the approval of AAU Purchase agreements concluded under public international law. According to Articles 3 and 7 of the *Law on International Treaties*, the Cabinet of Ministers has the authority to conclude international agreements, apart from peace agreements, agreements on basic relations between countries, agreements regarding borders as well as Latvia's participation in political, economic or military alliances. It thus seems clear that under the existing legislation, the Cabinet of Ministers could conclude AAU Purchase agreements. According to Article 9 of the *Law on International Treaties*, the Saeima (Latvian Parliament) needs to approve, *inter alia*, agreements on issues that must be addressed by legislation. As AAU Purchase agreements contain provisions dealing, for instance, with budgetary matters, they can be regarded as agreements dealing with issues that

⁵⁰ In contrast, Article 5 of the Law on the Kyoto Protocol provides that the Cabinet of Ministers can issue regulations on JI and CDM, and on assigning ERUs, CERs and RMUs.

must be addressed by legislation. In light of the existing legislation, the Saeima would thus need to approve AAU Purchase agreements that the Cabinet of Ministers has concluded on behalf of Latvia under public international law.

6.34 To simplify the procedures for approving AAU Purchase agreements in Latvia, it would be worth considering, whether it is possible to insert in the new law a provision delegating the Cabinet of Ministers the authority to sign and approve also the AAU Purchase agreements that have been concluded under public international law without the involvement of the Saeima.

6.35 According to the Latvian law on International Treaties, only treaties under public international law are considered international treaties. Therefore inter-governmental contracts governed by private international law would not envisage a Parliamentary approval. For the same reason rules for making international treaties are not applicable. However, Saeima can always choose to have a debate on this.

6.36 Against this background, it is possible to draw the following conclusions:

- AAUs belong to the state of Latvia and they can be sold in accordance with the general rules set forth both in the existing and planned legislation;
- Authority within the Latvian national administration to make decision regarding emissions trading needs to be defined;
- Under the existing legislation the Cabinet of Ministers could conclude AAU purchase agreements;
- Under the existing legislation the Saeima would need to approve AAU purchase agreements that the Cabinet of Ministers has concluded under public international law; and
- Agreement concluded under private law would not need to be approved by the Parliament, but Saeima may choose to discuss it.

6.37 Both options, namely concluding AAU purchase agreement under public and private international law, can be kept open for negotiations with interested buyers.

6.38 The new legislation on international emissions trading in Latvia would need to contain the following provisions:

- Authorisation for Ministry of the Environment and the Ministry of Finance to carry out the necessary preparatory actions related to the sale of AAUs, including, but not limited to, participation in negotiations and drafting of AAU Purchase agreements;
- Authorisation for the Cabinet of Ministers to make decisions on each sale of AAUs, including the price and specific conditions; and
- Authorisation for the Cabinet of Ministers to approve and authorize signature of AAU Purchase agreements.

6.5. EARMARKING REVENUES AND IMPLEMENTATION OF GREENING OBLIGATIONS

Pros and Cons of Earmarking

6.39 Earmarking government revenues to the GIS can be examined from an economic and legal perspective.

6.40 Economists usually argue against earmarking. Ministries of Finance are also often concerned about the risks of managing disintegrated budgets. The draft “*OECD Council*

Recommendations on Good Practices of Public Environmental Expenditure Management” also stipulates that, as a general rule, earmarking public expenditures is discouraged as it impedes efficient resource allocation to socially-optimal uses. However, the OECD goes on to state that if earmarking is deemed essential, it should be adequately designed and time-bound to achieve the objectives of the expenditure program. The OECD position on the main advantages and disadvantages of earmarking are presented in Box 11 below.⁵¹

Box 11: Earmarking—Advantages and Disadvantages

Earmarking refers to the practice of assigning revenue from specific taxes or groups of taxes/charges to finance specific government services. Environmental authorities have often advocated earmarking revenue from environmentally-related taxes/charges for financing environmental projects either through general budgets or through public environmental funds, controlled by the Ministries of Environment.

It is widely acknowledged that earmarking limits flexibility and thus, potentially, the efficient allocation of resources to the most socially-needed uses. Also, accumulation of earmarked schemes can lead to budget fragmentation, which can become difficult to manage. However, under certain conditions, earmarking can be a price worth paying to create a predictable financing stream for priority environmental measures that would otherwise not be implemented. Also, earmarking demonstrates a strong revenue-benefit link that helps increase acceptability of new taxes or charges, thus generating additional revenue for government spending. The use of earmarking calls for case-by-case decision making based on the pros and cons that are listed below:

Advantages

- Politically popular because it increases acceptability of new taxes or charges through a stronger revenue-benefit link;
- Transparency of revenue use through increased taxpayers’ knowledge of how their taxes are spent;
- Can be useful for funding special urgent environmental programs.

Disadvantages

- Leads to inefficient patterns of public expenditures;
- May undermine comprehensive public budget management;
- Introduces rigidities that impede adaptation to changing priorities;
- Can lead to over-investment and unnecessary spending;
- Tends to continue beyond the time frame necessary to achieve the program’s stated objectives (vested interests of fund managers and beneficiaries);
- Financing and incentive functions of taxes/charges are blurred;
- Potential contradiction with the PPP.

6.41 Despite potential drawbacks, in the case of International Emissions Trading, earmarking AAU proceeds to the GIS is a standard buyers’ requirement. Therefore, it can be deemed essential, hence justified in light of the OECD recommendations quoted above. Two remaining issues are: (a) design of the earmarked GIS, according to good international practice (see Chapter 9); and (b) legal issues under the Latvian Law related to budget management.

Earmarking of Government Revenues under Latvian Law

6.42 Under the Latvian national legal system, the following considerations are relevant to the earmarking of the AAU proceeds for the purposes of the GIS:

⁵¹ OECD 2005: “Draft Council Recommendation on Good Practices of Public Environmental Expenditure Management”, Paris, ENV/EPOC/WPNEP/(2005)1.

6.43 Section 1 of the *Law on Budget and Financial Management*, provides for the possibility of state revenues to be earmarked for special purposes. This provision can be interpreted to mean that it is possible to include an explicit provision in the new emissions trading law (or in amendments to existing laws) stating that all incomes from the sale of AAUs shall be earmarked and used for specific environment projects only. Such a provision would be extremely important as it increases transparency and the credibility to buyers and domestic stakeholders.

6.44 In case the money is not fully spent during one financial year, revenues from the sale of AAUs could be transferred to next year's budget as earmarked grants.⁵² All budget accounts, including special budget accounts are closed at the end of each financial year, but according to the Part 2 of Section 27 of the *Law on Budget and Financial Management*, monies not spent in previous year can be placed with the next year's account, if a special law provides for it.

6.45 According to Section 8 of the *Latvian Law on Budget and Financial Management*, a special budget⁵³ shall encompass appropriations⁵⁴ for state or local government purposes (...), if the law provides for the covering of expenditures from sources of revenue earmarked for special purposes and if special budget account is opened in the Treasury (an administrative institution subordinated to the Ministry of Finance)⁵⁵ in accordance with the law or with the permission of the Minister for Finance. It is also stipulated that transfers from a basic budget account to a special budget account shall be permitted only pursuant to an appropriation. A special budget, in accordance with Section 9 Part 3 of *Law on Budget and Financial Management*, has an appropriation permitting only such expenditure as does not exceed the amount of actual revenue, the surplus of funds at the beginning of the financial year, and loans from the state basic budget.

6.46 Opening a special account seems possible under existing legislation. According to Article 27 of *Law on Budget and Financial Management* and article 5.4. of *Statutes of State Treasury*, adopted by the Cabinet of Ministers, the Treasury opens and holds accounts for state monies.⁵⁶ The regulation above, as well as Article 8⁵⁷ of the said law, stipulates that for earmarked revenues of certain state institutions a special budget account must be opened, separate from core state budget accounts. Although there is no specific regulation, based on discussions in the Ministry of Finance of Latvia, it is understood that a separate sub-account of the relevant ministry may be opened as well. Keeping AAU revenues in different accounts from state core budget accounts would make expenditures transparent to buyers and national stakeholders.

6.47 Expenditures could be executed from this special budget account or a special sub-account⁵⁸ and disbursed to owners of the projects appraised and selected by the agency managing the green investment fund,⁵⁹ under supervision of Ministry of the Environment. All disbursements

⁵² As mentioned in section 4 of *Law on Budget and Financial Management*, a financial year shall begin on 1 January and end on 31 December.

⁵³ Special budget refers to special purpose earmarked revenue, revenue from paid services, and other own revenue, foreign financial assistance, donations and monetary gifts or gifts-in-kind (accounted for monetarily), as well as expenditures intended to be covered from such revenue or also loans from the State basic budget.

⁵⁴ Appropriation is an authorisation granted by a budget law in a fixed amount, which allows the Treasury to assign and make payments for particular purposes from the revenue of the State budget (...).

⁵⁵ As mentioned in article 5.4. of Statute of the Treasury, adopted by the Cabinet of Ministers of Republic of Latvia on 3 August, 2004, in order to ensure implementation of the functions, the Treasury shall discharge the tasks prescribed in the *Law on Budget and Financial Management* as well as: open accounts for central government budget execution and manage the central government budget funding accounts in the Bank of Latvia and other credit institutions.

⁵⁶ See Annex 6.

⁵⁷ See Annex 6.

⁵⁸ The law does not specify the difference. It is the practice of State Treasury and Ministry of Finance.

⁵⁹ GIS management agency is discussed in Chapter 9.

to cover eligible expenditures under government or private projects can be made from the Special Account (SA) on the basis of statements of expenditures (SOEs)—see Box 12 for more details.

Box 12: Potential legal design of financial flows under the GIS in Latvia

The money from the sale of AAUs would arrive in the core state budget accounts as grants⁶⁰ or earmarked grants.⁶¹ As AAU sales revenue has to be spent for special purposes, they should be considered earmarked grants.

The revenue would then be forwarded under a separate budget program to a special account that would be created for Ministry of the Environment in the Treasury. The money transfer would be executed against a statement of expenditures submitted to State Treasury. The Government of Latvia may choose (e.g., under buyers' demand) to open sub-accounts in the Special Account, e.g., buyers' sub-accounts, and/or "thematic" sub-accounts for making disbursements for different programs or different greening types (e.g., investment projects versus capacity building). To the extent possible, the government may try to resist excessive fragmentation and internal earmarking of AAU revenues within the GIS, because this may infringe on efficiency and increase transaction costs of managing the scheme. However, different special accounts may be kept to fund the government versus private sector expenditures.

AAU revenues could be disbursed from the special account directly to beneficiaries or their contractors/creditors. The holder of the special account (Ministry of the Environment) and the agency managing expenditure program can be separate to enhance transparency and fiduciary scrutiny of the flow of the AAU funds.

Procedure, Fiduciary and Accounting Principles under Latvian Law

6.48 The owner of AAUs, the State of Latvia is not a value-added taxpayer under Latvian legislation and, therefore, no legislation regarding value-added tax is applicable in case of sale of AAUs by the Latvian government.

6.49 No special accounting principles applicable to AAUs are included in the existing Latvian legislation that would be relevant for the Latvian government as the seller. Standard accounting rules would apply.

6.50 As described above, all revenues from AAUs sales should be counted into a core budget of Latvia and disbursed to environmental projects and programs in a manner that is transparent to the buyers and can be monitored by them. Therefore, special fiduciary arrangements may be needed to ensure the buyers confidence.

Financial provisions for a new law on international emissions trading

6.51 The new legislation on emissions trading would need to cover the following issues related to management of revenues of international emissions trading:

- Principles for using the revenues from the sale of AAUs, including a clear provision stating that the revenues shall be used only for environmental projects;
- Provisions on a separate budget program and a special account in the Treasury;
- Provisions for carry-over of money not spent in one budget year to the next;
- Specific duties and responsibilities of the agency managing GIS Fund, which could be authorised to manage the project cycle under the green investment scheme; and

⁶⁰ Grants are budgetary funds that are allocated to other budgets, and merchants and organizations in order to ensure the performance of State or local government functions.

⁶¹ Earmarked grants are state budget funds that are allocated to other budgets to provide financing for a specific purpose.

- The responsibilities of the expenditure management agency in monitoring use of AAUs sales proceeds, including the role of the buyers' representatives in monitoring and supervision.

6.6. EU STATE AID RULES AND AAU TRADE

EU state aid rules

6.52 As a Member State of the European Union, Latvia must comply with EC competition rules that are essential for the integrity of the common European market. The ban on distortionary state aid is derived directly from the Treaty establishing the European Community (EC Treaty) (Articles 87 and 88) as one of the cornerstones of European competition law. It is also a logical consequence of the polluter pays principle, which is one of the cornerstones of EU environmental policy. The EC Treaty prohibits any aid granted by a Member State or through state resources in any form whatsoever, which distorts or threatens to distort competition by favoring certain firms or the production of certain goods in so far as it affects trade between Member States. Exceptions are allowed provided state aid fulfils clearly defined objectives of common interest and does not distort intra-community competition and trade to an extent contrary to the common interest.

6.53 The European Commission has the exclusive power to declare state aid compatible with the European Treaty. In making its judgments, the European Commission usually refers to published guidelines and precedents (e.g., previous EC decisions judgments of the European Court of Justice). In the case of state support for environmental purposes, the most applicable reference documents are the EU guidelines for the state aid for environmental protection (OJ C 37 of 03 February 2001) and the guidelines for regional aid (OJ C 54/13 of 4.3.2006).

6.54 *Guidelines for state aid for environmental protection.* Under the current version (adopted in 2001), state aid to companies to meet existing or new Community environmental standards is considered incompatible with the common market, and hence prohibited. Exceptions (up to specific limits) are granted to support certain EU policy objectives of common Community interest—investments in energy efficiency, renewable energy sources, and combined production of heat and power. Also allowed are: (a) operating aid for waste management and energy saving; and (b) operating aid for renewable energy sources and good quality combined heat and power (CHP). The present guidelines expire on 31 December 2007. The European Commission has already launched a process to revise the Community guidelines for state aid for environmental protection, and emissions trading systems for greenhouse gases have already been brought up in that context.

6.55 The new environmental aid guidelines will be incorporated in a comprehensive reform of state aid rules to be completed in 2006. In the State Aid Action Plan adopted in June 2005, the Commission proposed an objective of less but better targeted aid in all fields. This is linked to a refined economic approach that tries to focus state aid to areas where it improves the functioning of markets. Consequently changes will be made to facilitate the targeting of aid towards areas contributing to growth and employment, notably research and development and innovation and risk capital. At the same time, rules will also be adapted to ensure high-quality public services, modern transport and energy infrastructure, and social and regional cohesion. The Commission intends to simplify, consolidate, and extend, as much as possible, the use of block exemptions and adapt its assessment to the impact that aid has on competition and trade (see State Aid Action Plan). As a consequence, fewer aid measures will need to be notified to the Commission.

6.56 **Guidelines on National Regional Aid** (OJ C 54/13 of 4.3.2006) make the entire territory of Latvia eligible for the highest rate of state aid intensity allowed. Aid for large companies can reach 50 percent of eligible costs, and 65 percent of eligible costs for small- and medium-size enterprises.⁶² Regional aid generally offers more flexibility than environmental aid, e.g., with respect to aid intensity or definition of eligible costs.⁶³ The European Commission has already issued a consultation draft of the guidelines for regional aid for the 2007-2013 financial framework. According to the Commission proposal, if regional income exceeds 45 percent of EU25 GDP per capita, maximum state aid intensity to large companies will decrease.

6.57 Beginning in 2007, a new form of aid is envisaged to encourage business start-ups in aid-assisted areas. This will allow aid to support business start-up costs that are not currently eligible for aid. The aid will be limited to the establishment and expansion phases of small enterprises for the first five years.

Potential state aid issues with the GIS

6.58 Potentially two aspects of AAU trade constitute state aid under EU guidelines. First if the Latvian government decided to transfer AAU revenues (through a GIS) to Latvian enterprises and second if the government transferred rights to sell AAUs to these enterprises, authorizing them to trade internationally.

6.59 The Commission is likely to consider both as state aid that may be incompatible with the common market. The Commission may be particularly concerned about the effect on competition and trade if aid beneficiaries are participants of the EU Emissions Trading Scheme. Because the EU ETS is the Community-wide trading system, aid offered to one country's participants would most likely discriminate among companies and unduly favor some.⁶⁴

6.60 Therefore, Latvia or any other Member State will find it difficult to green AAUs by using revenues to support emission reduction from installations covered by the EU Emissions Trading Scheme. Such support is likely to be treated similar to any financial incentives offered by any Member State to the EU ETS participants. Although the EC granted a similar request made by the UK before the EU ETS directive came into effect, it is now considered distortionary.⁶⁵ The Commission argued that financial incentives planned by the British government would unduly favor British companies and affect trade in the EU ETS market.

6.61 In this context, the EU state aid rules introduce additional constraints on opportunities for Latvia to green significant volumes of AAUs. Installations participating in the EU ETS account for about one third of Latvia's CO₂ emissions and approximately 25 percent of the total GHG emissions. These installations are also the major emitters of conventional pollutants. Usually environmental projects in large installations are more cost effective and easier to implement. Without these projects the Government of Latvia is left with more difficult investment opportunities—a large number of smaller projects in the more difficult segment of the market. Yet aid—even for smaller companies will need to be designed to be compatible with the common market, i.e., to avoid significant effects on competition and trade. The basic objective of aid—environmental protection—will not be sufficient justification.

⁶² Since 2007 small enterprises will be eligible for 70 percent state aid intensity and medium ones—60 percent.

⁶³ Under regional aid guidelines total investment costs are considered eligible costs.

⁶⁴ See for example Criterion 5 of Annex III to the Community Guidelines on National Allocation Plans, which stipulates that: “*The plan shall not discriminate between companies or sectors in such a way as to unduly favor certain undertakings or activities in accordance with the requirements of the Treaty, in particular Articles 87 and 88 thereof*”.

⁶⁵ See: Decision State aid No N 416/2001 – United Kingdom Emissions Trading Scheme.

6.62 For projects that indirectly reduce emissions from EU ETS installations, the state aid situation is more nuanced than for the projects undertaken directly by EU ETS operators. Examples are rehabilitating a district heating pipeline connected to a boiler, which is under EU ETS, or improving energy efficiency of buildings connected to this pipeline. In the case of indirect impacts, the GIS affect installations in the EU ETS differently than JI. Unlike ERUs, AAUs can be issued and transferred without associated emission reductions. There is no legal obligation to cancel EUA from the National Registry when the AAU is transferred. Double counting does not affect GIS in the interpretation of Linking Directive, which applies to JI and CDM, but not to IET. The relevant pieces of the EU acquis are those on state aid. State aid may be compatible with the common market under several Community regulations. Compatibility will depend on the design of an aid scheme and proposed aid intensity. Double counting may, however, be a constraint for projects that combine GIS and JI financing (topping up) or the GIS which would be (partly) proposed as a JI 1st track mechanism. The boundaries between direct and indirect emissions reduction are very important in the context of state aid, but as of mid-2006 the European Commission had not yet issued guidelines.

Options to avoid state aid constraints in Latvian GIS

6.63 Latvia will have a few options to design the GIS in line with current and expected EU state aid rules (see Figure 12).

- Prepare a scheme of state aid to enterprises, including the EU ETS participants for notification and approval of the European Commission.⁶⁶ Probability is low that the Commission will consider such aid compatible with the Common Market—transaction costs are high, and time needed for approval is long.
- Provide state aid under “*de minimis*” rule, i.e., grant support that does not exceed 100,000 Euro per beneficiary during three years. This level of aid does not require that the European Commission be notified but the amount is likely to be insufficient to trigger investment.
- Earmark most AAU revenues to projects and programs that do not directly benefit Latvian EU ETS participants. In this case the public support may:
 - not constitute state aid within the meaning of Article 87 of the European Treaty if the support would benefit for example: (a) the budget entities (e.g., schools, hospitals, public buildings), (b) utilities (irrespective of ownership) that provide services of general economic interests under state orders⁶⁷, or (c) general public e.g., inhabitants of residential buildings or other private persons;
 - constitute state aid, which is compatible with the Common Market and does not require notification of the commission (e.g., competitively awarded aid

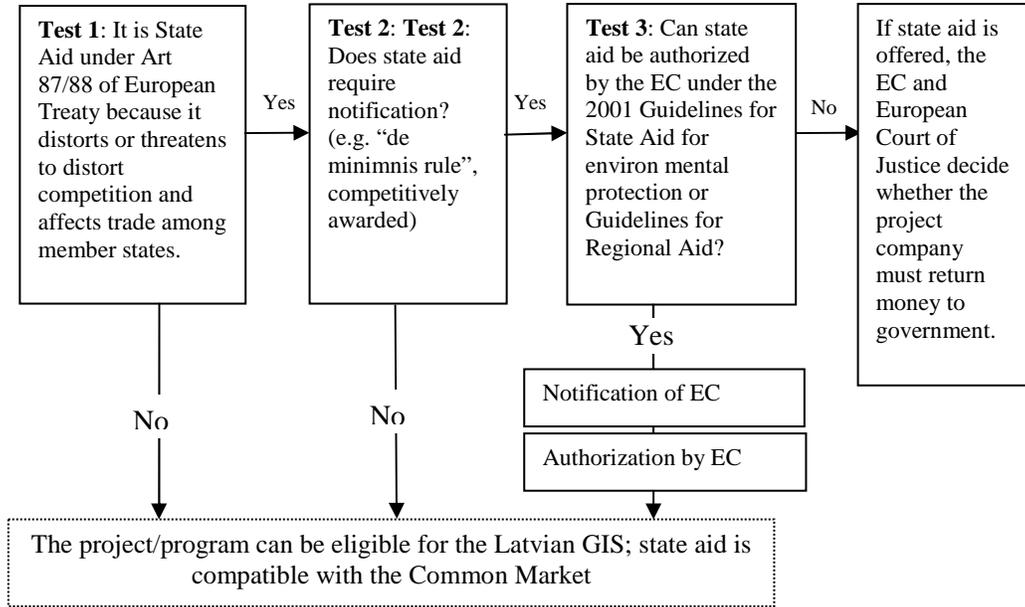
⁶⁶ An emission tax allowance scheme for EU ETS participants has been submitted to the Commission; reply is pending

⁶⁷ Public support would need to be designed as a public service compensation that meets four cumulative criteria: (a) recipient must have service obligation to discharge, clearly defined by the state bodies; (b) the parameters, on the basis of which the compensation is calculated must be established in advance in an objective and transparent manner; (c) the compensation can not exceed what is necessary to cover all or part of the costs incurred in the discharge of the public service obligation, taking into account relevant receipts and reasonable profit; and (d) the provider of public service must be selected pursuant to a public procurement procedure, which would allow for the selection of the tendered capable of providing those services at the least cost to the community, or the level of compensation must be determined on the basis of an analysis of the costs that a typical undertaking, well-run and adequately provided, would have incurred (see European Court of Justice judgement in the Altmark case (2003, ECR I-7747).

where competition is open without prejudice to all firms from EU Member States); and

- constitute state aid, which may be incompatible with the Common Market, thus would require notification and approval of the European Commission. In this case the state aid scheme would need to be prepared by Ministry of the Environment and designed to minimize adverse effects on competition and trade within the European community (e.g., to benefit SMEs).

Figure 12: State aid decision algorithm for potential projects/programs under the Latvian GIS



6.64 The procedure to notify the Commission and obtaining its authorization may be long and cumbersome, especially if the proposal does not take due account of Community legislation and legal precedents established by the European Commission and the judgments of the European Court of Justice. The proposal of the state aid scheme needs to be prepared by the line ministry (e.g., Ministry of the Environment) and submitted to the Competition Department of the Ministry of Finance, where it is reviewed before being submitted to the European Commission. The review may take up to two weeks if the proposal is well prepared and several months if significant issues are raised. Following official notification, the European Commission has up to two weeks to respond or request additional clarification. The exchange of views in controversial cases may take several months.

6.65 In preparing the state aid schemes that require notification of the European Commission, the Government of Latvia may try to discuss with the European Commission the applicability of regional aid guidelines and reformed state aid rules for environmental protection to an AAU trade to identify any problems before the GIS is officially established.

7. INVESTMENT AND GREENING OPPORTUNITIES

7.1 This chapter discusses potential for emission reduction, greening measures, eligibility for GIS projects and programs, and financing needs for greening programs.

7.1. GHG EMISSIONS REDUCTION POTENTIAL

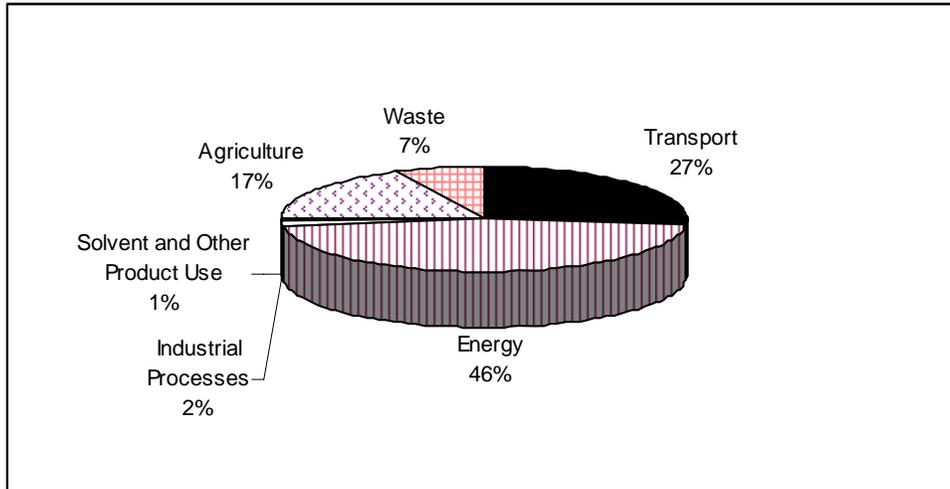
7.2 In 2004, the most significant source of greenhouse gas emissions was energy sector (46 percent), followed by transport (27 percent), agriculture (17 percent) and waste management (7.0 percent). In terms of individual greenhouse gases, the largest contribution in CO₂ equivalents comes from CO₂ (7.5 Mt per year), followed by methane (1.8 Mt in CO₂eq) and N₂O (1.4 Mt in CO₂eq). The 2004 emissions from different sources are indicated in Table 8 and summarized in Figure 13.

Table 8: Primary GHG emission sources in Latvia in 2004, (CO₂ equivalents kt/a)

	CO ₂	CH ₄	N ₂ O	F-gases	Total	%	%
Energy							72
Energy Industries	2088	6	12		2,107	20	
Manufacturing Industries and Construction	1066	7	12		1,085	10	
Transport	2793	15	88		2,897	27	
Other Sectors	1243	263	53		1,559	15	
Fugitive Emissions from Fuels (oil and natural gas)		130			130	1.0	
Industrial Processes							2.0
Mineral Products	198				198	2.0	
Metal Production	47				47	0.4	
Consumption of Halocarbons and SF ₆				21	21	0.2	
Solvent and Other Product Use	49		6		55	1.0	1.0
Agriculture							17
Enteric Fermentation		562			562	5.0	
Manure Management		83	152		235	2.0	
Agricultural Soils			1063		1,063	10	
Waste							7.0
Solid Waste Disposal on Land		525			525	5.0	
Wastewater Handling		212	50		262	2.0	
Waste Incineration	0.5				0.5	0.0	
Total	7,485	1,803	1,436	21	10,746	100	100

Source: UNFCCC 2006

Figure 13: Sectoral breakdown of greenhouse gas emission sources in Latvia in 2004



7.3 Latvia has significantly reduced its GHG emissions from 25.4 MtCO₂eq in 1990 to 10.7 Mt in 2004. To reduce emissions of greenhouse gases by additional 40 million tons of CO₂ equivalent would be very challenging during a realistic crediting period (e.g., 10 years) to match the sale of 40 million AAUs potentially available for sale, should this be required by buyers. It would require an immediate emissions abatement of about 40 percent. The financial, economic, and technical feasibility of such a target is questionable.

7.4 One constraint on GHG emissions reduction is the relatively low carbon intensity of the power sector in Latvia. Average CO₂eq emission factor of grid electricity is around 150 g/kWh⁶⁸ compared to, for example, approximately 350 g/kWh in 2001 for EU15.⁶⁹ The Latvian power sector can however contribute to climate mitigation in the longer run by preventing emission increase. The rapidly growing economy can become less energy and carbon intensive. For example, Latvia's energy policy envisages construction of a new coal-fired power plant to reduce the country's dependence on imported power and gas. The capacity of the new plant, hence its emissions, could be higher or lower, depending on investments in energy efficiency and alternative renewable energy sources that would influence future demand for new "dirty" capacity in a country energy system.

7.5 Relatively high dependence on imports of energy resources is a distinct feature of the entire Latvian energy sector. Only one-third of total 2004 energy consumption was supplied from domestic sources. Latvia imports oil products and electricity from several countries and supply regions, whereas natural gas has only one supplier—Russia. Imported electricity often has high embedded carbon content (e.g., produced from shale oil in Estonia) but by current carbon accounting standards global emission reduction credits created by substitution of imported power with domestic generation would not be attributed to Latvia.

⁶⁸ There is no official baseline emission factor currently available for Latvia. The use of higher baseline emission factor for projects reducing GHGs can be substantiated based e.g., on the operating margin emission factor and the build margin emission factor approaches utilized in CDM projects. For example, the Dutch ERUTP program proposed a baseline emission factor of 363 g CO₂/kWh for JI projects generating electricity for Latvia (Ministry of Economic Affairs of the Netherlands, 2004). Baseline emission factor for grid electricity can be adequately calculated as part of GIS implementation.

⁶⁹ EURELECTRIC Report: Environmental Statistics of the European Electricity Industry 2000-2002 - Trends in Environmental Performance; <http://public.eurelectric.org>.

7.6 EU Emissions Trading Scheme further reduces potential to use AAU revenues to achieve greenhouse gas emissions reduction. As described previously, due to EU state aid rules, the use of AAU revenues for direct emission reductions measures at EU ETS installations will be limited. Only limited state aid would be allowed by the European Commission. In addition, emissions reduced in EU ETS installations in Latvia would lead to transfer of EU allowances to other installations in EU to cover their emissions, and consequently no net emission reductions would occur.⁷⁰

7.7 As discussed previously, the Latvian government may have to choose to carry out greening measures in installations and sectors that do not directly influence installations covered by EU ETS. Indirect influences can most likely be allowed, e.g., energy efficiency projects that reduced demand for energy, and hence output and emissions from power plants covered by EU ETS.

7.8 Tentative analysis indicates that economically realistic potential for the GHG emissions reduction period is only about 8.5 Mt utilizing conservatively assumed 10 year crediting period.⁷¹ After subtracting forecasted GHG emission reductions from EU ETS installations, the economically realistic potential to reduce GHG emissions through a GIS can be only 7 MtCO₂eq during this crediting period (using conservative assumptions, for example, about emission factors for grid electricity). These estimates are illustrated in Table 9 below.

⁷⁰ Theoretically, it can be argued that in the longer run net emission reductions may take place if allocations for the given installations are reduced in the next National Allocation Plans.

⁷¹ This estimation takes into account a lead time needed for projects, i.e., effective crediting period is 7.5 years.

Table 9: Proposed GIS programs in energy and transport sectors in Latvia and preliminary estimate of their GHG emissions reduction potential

Program**		Output of a program by 2012	Tentative emission reductions potential CO ₂ eq kt		Estimated direct EU ETS Coverage, %	Estimated ERs "outside" ETS, kt/10a
			Annually	10 years*		
1	Biomass heat only boilers	100 GWh/a heat	20	152	50	76
2	Efficient biomass and geothermal energy in households	100 GWh heat saved	20	152	0	152
		50 GWh geothermal heat	10	76	0	76
3	Combined heat and power	250 GWh/a electricity	37	274	50	137
		550 GWh/a heat	111	834	50	417
4	Small hydro power and wind power	10 GWh/a electricity	1	11	0	11
		300 GWh/a electricity	44	329	0	329
5	Solar energy	27 GWh/a heat	5	41	0	41
6	Production and promotion of bio-fuels	75 000 t/a (transport sector)	238	1,782	0	1,782
		50 GWh/a heat	10	76	50	38
7	Biogas utilization	256 GWh/a electricity	37	280	0	280
		394 GWh/a heat	80	598	0	598
8	Energy efficiency in energy generation	364 GWh heat saved (efficiency)	74	552	80	110
		291 GWh heat saved (heat condensers)	59	442	80	88
9	DH rehabilitation	364 GWh heat saved	74	552	0	552
10	Energy efficiency in buildings	1065 GWh heat saved (residential buildings)	216	1,619	0	1,619
		233 GWh heat saved (other buildings)	47	354	0	354
		313 GWh electricity saved (all buildings)	46	342	0	342
11	Environmentally friendly transportation system	To be defined	**	**	0	**
Total			1,129	8,464		7,001

*It is assumed that implementation starts in 2008. ** Transport sector GHG greening potential will be estimated once pipeline is established.

7.9 This estimate is based on aggregated GHG reduction potential of identified measures like promotion of biomass, biogas, bio-fuels use, as well other renewable energy sources and various energy efficiency measures. Additional measures expanding some programs, such as increase of biomass use, could increase the potential considerably. A longer crediting period would also increase the amount of reductions of GHG emissions that could be credited against AAU sale. Potential buyers and/or Latvian government may not, however, agree on very long crediting periods. Additional programs including CH₄ and N₂O reductions could also be identified.

7.10 Total greening potential for each program is discussed in more detail in Annex 6. The main assumptions for GHG greening potential are listed below. Should there be a need to change

main assumptions; GHG greening potential can be recalculated. For example using higher baseline emission factor of 363 g CO₂/kWh, as proposed by Dutch ERUPT program for electricity, could increase the volume of emission reductions approximately from 7 to 8.6 Mt for 10 year period. Underlying data is based mainly on 4th National Communication, other documents, and on Latvian expert judgments using rather conservative assumptions.

7.11 Main assumptions are the following:

- For each program, a technically and financially “practical potential” has been estimated, based mainly on Latvian expert judgment—maximum potential is larger;
- Indirect impacts on the EU ETS are allowed whereas the estimated direct impact on the EU ETS has been separately taken into account and reduced from potential GHG greening;
- Emission reduction calculations in the heating sector are based on replacing natural gas (with 1.0 percent of mazut), i.e., 56 g CO₂eq/MJ;
- Average emission intensity factor for grid electricity is approximately 150 g CO₂eq/kWh (higher baseline emission factor of 363g CO₂/kWh as proposed by Dutch ERUPT program for electricity in Latvia could increase the volume of emission reductions approximately by 1.6 Mt for 10 year period); and
- Saved biomass is assumed to replace natural gas in other installations and new biomass based capacity is assumed to replace natural gas capacity.⁷²

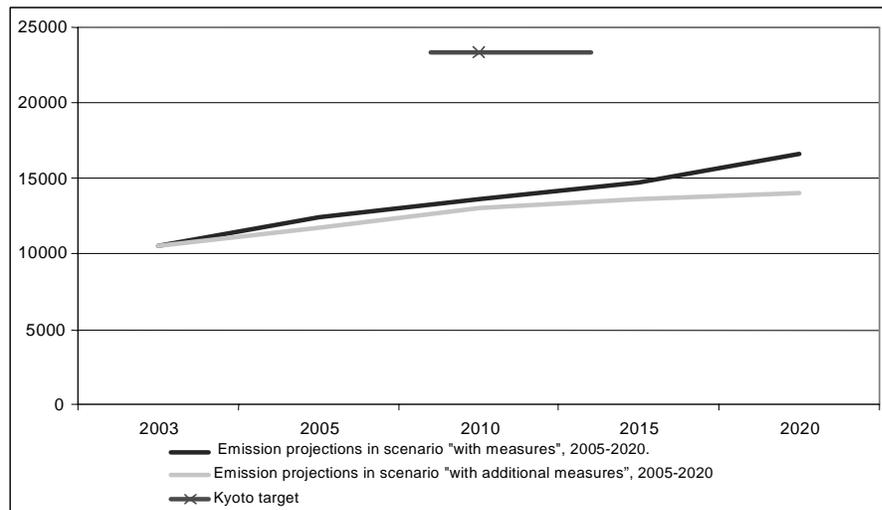
7.12 Most GHG greening programs offer other benefits in addition to GHG reduction and/or avoided emissions: (a) emissions of conventional pollutants can be reduced in some cases;⁷³ (b) heat tariffs may be lowered as fuel procurement will be less dependent on fluctuating oil prices; (c) fuel supply will be more stable, secured and independent; (d) fuel is produced locally and money and taxes stay in Latvia; (e) additional revenues could be provided, e.g., for local wood processing companies; (f) natural resources can be saved by more effective use of biomass, and (g) local employment opportunities can be provided.

7.13 The forecasted impact of climate mitigation measures discussed in this section is illustrated in Figure 14 below, based on 4th National Communication. Additional greening measures would decrease estimated emissions and free up additional AAUs for sale, but significant impact of these additional measures, in terms of GHG emissions reduction, can only be expected in the long term, i.e., beyond 2012.

⁷² It could be argued that some biomass could replace planned coal capacity, but in the other hand some saved biomass could be exported. In order to simplify calculations and err on the side on conservatism, it is assumed that biomass would replace natural gas.

⁷³ Although sometimes local emissions could be increased, i.e., PM emissions when switching from natural gas to biomass.

Figure 14: GHG emissions forecast in 2003–2020, Gg CO₂ eq



Source: Ministry of the Environment, Latvia 2006

7.14 The estimates and forecasts discussed in this section clearly support the conclusion that greening of 40 million AAUs in Latvia could only be possible by using revenue not only for traditional GHG emission reduction measures, but also for preventing of GHG emissions and for achieving environmental and other benefits.

7.15 Priority measures and sectors where reduction of greenhouse gases is most promising have been tentatively identified in collaboration with the Latvian Ministry of the Environment and other stakeholders. In addition to Table 9, a detailed review of GHG emissions reduction potential in different sectors is in Annex 5. Specific concepts of the most promising projects in different programs are being prepared for the Latvian government with the support of Finland. The Annex also analyzes issues, opportunities, and barriers related to implementation of different measures and reviews implementation of the key government policies.

7.2. OTHER GREENING MEASURES

7.16 Because of limited potential for GHGs emission reductions measures implemented during the first commitment period, Latvian GIS may need to include the relatively high share of the greening measures that do not generate immediate and easily measurable reduction of greenhouse gases. These other greening measures can be usefully separated into two categories:

- greening measures crucial for GIS implementation; and
- greening measures that generate other environmental benefits.

7.17 The first category includes capacity building and technical assistance measures essential for successful greening. Measures may include establishing/strengthening GIS governing and management institutions, or establishing a system for monitoring, verification, and reporting greening results. The second category may be investments in fixed assets that reduce both local and global pollution, or “soft” policy and institutional measures that would stimulate long-term low-carbon development for Latvia. Specific ideas for greening measures are included in Annex 6.

7.3. ELIGIBILITY CRITERIA FOR THE GIS PROJECTS

7.18 To guide project identification, clear eligibility criteria need to be defined for potential projects under Green Investment Schemes. Basic elements of eligibility criteria can be shared between programs but fine-tuning will be needed for each individual program during GIS implementation.

7.19 Some greening measures that are crucial to implementing GIS, such as capacity building for GIS management, and monitoring and verification, do not need project-specific criteria as they are designed as a part of overall GIS design (see Chapters 9 and 11).

7.20 Eligible projects would typically need:

- An objective and scope consistent with legitimate “greening” measures to be agreed with buyers;
- Demonstrable ex ante and significant “greening” potential;
- Legal feasibility (e.g., ownership issues clarified, eligibility for public support confirmed, compliance with Latvian and EU law assured);
- Technical feasibility;
- Economic justification (or demonstrable cost-effectiveness to achieve emissions reduction);
- Demonstrable financial feasibility with carbon revenue and some additionality (e.g., matching investment financing must be available/identified; GIS revenues should address some barriers and must not crowd out already committed finance);
- Rapid implementation timeline—not later than until 2010 (e. g., competent project sponsor identified, permits/licenses/power purchase agreements obtainable);
- Potential to generate verifiable environmental or other benefits during the crediting period agreed with AAU buyers; and
- To support Latvia’s wider sustainable development objectives.

7.21 “Additionality” is not required under international emissions trading (unlike JI projects). But in negotiations with buyers Latvia can define as “additional” those projects that for variety of reasons, would not have been implemented as planned, would have been implemented but with delays, or would be less environmentally friendly without the GIS. Similarly, innovative projects that go beyond “business as usual” by EU and Latvian standards can be considered “additional.” The Latvian government may even argue that the projects aiming to meet EU Directive requirements could be supported under the GIS if their implementation is impeded by financing barriers and/or there are no project specific requirements set by the Directive in question. This argument is particularly valid for projects that indirectly support implementation of EU Directives. An example would be a bio-fuel plant helping (or exceeding) the EU requirement for the use of bio-fuels in the transport sector. Projects not eligible for funding under the GIS would include those for which funding is available, with a high financial rate of return, low risk, and those included in existing public or private programs (considered “baseline”).

7.4. POTENTIAL GREENING PROGRAMS FOR THE GIS

7.22 A total of 18 greening programs have been tentatively identified as options for Latvian GIS. Programs will consist of several projects and other activities, and total greening potential can be expanded as funding permits. Currently identified programs are summarized in Table 10.

Table 10: Summary of promising greening programs

#	Program name	Technical scope of typical projects	Typical project owners	Typical project cost	% share of expected GIS funding ⁱ	Main barriers to project implementation
1	Biomass heat only boilers	- Small biomass boilers replacing fossil fuels and/or improving energy efficiency	Private and/or municipal companies	MLVL 0.4 (M€ 0.57)	30	-Investment barrier -Inadequate heat tariffs
2	Efficient use of biomass and geothermal energy in households	- Replacing low efficiency firewood boilers in private sector with efficient ones - Fuel switch projects (natural gas to biomass). - Heat pumps	Private households	LVL 4,000 – 7,000 (€ 6,000 – 10,000)	50	-Investment barrier
3	Combined heat and power	- Small co-generations plants replacing heat only plants utilizing fossil fuels - Improving energy efficiency	Private and/or municipal companies	MLVL 1.70 (M€ 2.40)	30	-Investment barrier - Insufficient feed-in tariff
4	Small hydro power and wind Power	- Modernization of existing hydro power plants - New wind power plants	Private companies	MLVL 1.6-7.8 (M€ 2.3-10.6)	50 75****	-Investment barrier - Insufficient feed-in tariff
5	Solar energy	- Installation of solar collectors	Municipalities, Government Private apartment buildings	LVL 60,000 (€ 90,000)	50	-Investment barrier
6	Production and promotion of bio-fuels*	- Substitution of natural gas by biodiesel	Private companies	MLVL 0.04 (M€ 0.06)	30	-Investment barrier
7	Biogas utilization	- Anaerobic biogas digester	Large farms Private or municipal companies	MLVL 1.0 (M€ 1.4)	60	-Investment barrier - Lack of political support and - Lack of access to finance
8	Energy efficiency in energy generation	- Flue gas condensators	Private or municipal companies	MLVL 0.25 (M€ 0.35)	25	-Investment barrier
9	DH rehabilitation	- Replacement of main pipelines	Municipalities Municipal companies	MLVL 0.8 (M€ 1.1)	50	-Investment barrier - Inadequate heat tariffs
10	Energy efficiency in buildings	- Insulation of building envelope, heat insulation of heating and hot water pipes, substations, valves, change of boilers, heating pipelines and electric appliances	Municipalities Government, Private and/or municipal companies Private apartment buildings	LVL 510,000 (€ 700,000)	30	-Investment barrier - Legal, technical and psychological barriers - Ownership issues
11	Environmentally friendly transportation system	**	Municipalities Government	**	**	- Lack of financial resources

#	Program name	Technical scope of typical projects	Typical project owners	Typical project cost	% share of expected GIS funding ⁱ	Main barriers to project implementation
12	Capacity building for GIS management	- Development of GIS management - Technical assistance in project preparation for private and municipal companies	Government Private companies	**	100	***
13	Monitoring and verification of GIS	- Strengthening Regional Boards, Environmental State Bureau; Fund responsible for GIS for monitoring and verification, as applicable; - Subsidize costs of private verifiers	Government Private companies	**	50–100	***
14	Capacity for climate policy development and management	- Strengthening the capacity of Ministry of Environment for GIS and IET supervision, mitigation and adaptation measures, post 2012 preparations	Government	**	**	- Lack of financial resources
15	Emission reductions of local pollutants (VOCs)*****	- VOC emissions reductions in (i) paint industry and workshops, (ii) petrol distribution, (iii) transit terminals, (iv) printing industry	Private companies	**	**	-Investment barrier
16	Climate change adaptation	- Synthesis of available information - Assessment of vulnerability - Identification of key adaptation measures, - Data collection, observations, modeling, scenarios, research and technologies for adaptation.	Government, Research institutes Municipalities Private companies	** MLVL 2-4; (€M 2.7-5.4)	**	- Lack of financial Resources
17	R&D and promotion of low carbon, BAT and clean production	- Technology development - Research project	Government, Research institutes Municipalities Private companies	**	**	-Investment barrier - Lack of financial resources
18	Awareness raising and wider capacity building	- Information campaigns. - Publications - Workshops, training	Government, Research institutes Municipalities Private companies	**	**	- Lack of financial resources

*Transport sector and production of bio-fuels currently excluded; major investments needed

** To be defined when GIS is further elaborated in Latvia

*** To be funded through GIS implementation as applicable

****Depending on forthcoming feed-in tariff

*****In addition to this specific program, the role of conventional pollutants will be discussed within each relevant program

ⁱ To make different disbursement instruments comparable, the GIS funding was calculated as net present values of the payments under the GIS.

Additional programs, especially related to non-GHG reduction, can be identified at a later stage. Currently proposed options cannot be considered final and will be built up as the GIS concept is further developed in Latvia.

7.5. FINANCING NEEDS OF GREENING PROGRAMS

7.23 Total financing needs for all programs have been tentatively estimated and the potential niche for GIS funding has been identified. The current public financing sources have also been estimated. Private funding is theoretically unlimited, and is assumed to complement the public funding included in Table 11. A very preliminary estimate of the share of GIS (or other grant-based) funds needed to overcome financing barriers is based on expert judgments and consultations with associations of project owners, discussed in Annexes 5 and 6.⁷⁴

7.24 This preliminary analysis shows that total investment to implement all GHG greening measures proposed in Table 11 is 3–4 billion Euro; the projected (likely overestimated) GIS share can be approximately 1 billion Euro. Total demand for potential GIS funding may be underestimated because some measures, such as bio-fuel production and non-GHG emission reduction projects, are not yet included in this cost estimate due to insufficient data available at the time of the study. On the other hand, this estimate may reflect some wishful thinking and should be verified during GIS implementation.

⁷⁴ This data would in principle allow for some very coarse cost effectiveness calculations (i.e., EUR/t CO_{2eq} reduced). Due to uncertainties this calculation has not been conducted at this stage.

Table 11: Estimated financing needs and public financing available for programs considered for the GIS in Latvia

	Program**	Output of a program by 2012	Investments needed by 2012 M€	Public financing available by 2102 M€		EU funding available M€	Estimated share of GIS financing needed***	
				State budget	Municipal budgets		%	M€
1	Biomass heat only boilers	100 GWh/a heat	35	53	-	280	30	11
2	Efficient biomass and geothermal energy in Households	100 GWh heat saved	18		-		9	
		50 GWh geothermal heat			-		50	
3	Combined heat and power	250 GWh/a electricity	110		-		33	
		550 GWh/a heat			-		30	
4	Small hydro power and wind power	10 GWh/a electricity	141		-		71	
		300 GWh/a electricity			-		50	
5	Solar energy	27 GWh/a heat	165		-		83	
6	Production and promotion of bio-fuels	75 000 t/a (transport sector)	*		-		*(75-80)	
		50 GWh/a heat	23		-		30	7
7	Biogas utilization	256 GWh/a electricity	100	-	60			
		394 GWh/a heat		-				
8	Energy efficiency in energy generation	364 GWh heat saved (efficiency)	21	-	5			
		291 GWh heat saved (heat condensers)		-	25			
9	DH rehabilitation	364 GWh heat saved	100	5	50	50		
10	Energy efficiency in buildings	1065 GWh heat saved (residential buildings)	749	9	43	30	225	
		233 GWh heat saved (other buildings)	1001				300	
		313 GWh electricity saved (all buildings)	1072				321	
11	Environmentally friendly transportation system	*	*	*	*	*	*	
12	Capacity building for GIS management	*	*	*	0	0	100	*
13	Monitoring and verification of GIS	*	*	*	0	0	50-100	*
14	Capacity for climate policy development and management	*	*	*	0	*	*	*
15	Emission reductions of local pollutants (VOCs)	*	*	*	0	*	*	*
16	Climate change adaptation	*	4	*	0	*	*	*
17	R&D and promotion of low carbon, BAT and clean production	*	*	*	0	*	*	*
18	Awareness raising and wider capacity building	*	*	*	*	*	*	*
	Total		3,538	62	5	323		1,174

* To be determined during GIS implementation

** Transport sector investment needs will be estimated once program is established.

*** Share of GIS financing is expressed as a ratio of the net present value of expected payments under the GIS to the total estimated investment costs of a project program.

7.25 Even these rough and incomplete cost assessments for proposed programs and available public funding convincingly illustrates the value-added and significant potential demand for funding under the GIS. Total expected co-financing would exceed several times over the expected revenues from a sale of 40 million AAUs. Certainly funding under the GIS does not have to satisfy the whole potential demand. Moreover in reality several existing barriers may prevent potential demand from converting to “effective” demand—that is, project owners willing to invest. Nevertheless these estimates offer reasonable assurance that expected AAU revenues can be realistically absorbed by the portfolio of priority environmental programs, for which baseline funding is inadequate.

8. INSTITUTIONAL SET UP OF GIS FRAMEWORK

8.1 This chapter outlines principles of expenditure management under the GIS and options for managing a GIS fund in Latvia.

8.1. PRINCIPLES OF EXPENDITURE MANAGEMENT UNDER THE GIS

8.2 To be credible to buyers the management of AAU expenditures under the GIS should comply with best international practice—transparent, efficient, and accountable. The World Bank requirements for financial intermediaries⁷⁵ and the OECD Council Recommendation on Public Environmental Expenditures Management can provide an overall framework for design of the GIS management mechanism. Established international practices define the key design principles of the GIS expenditures management scheme as follows:

- transparency
- accountability to Latvian Government and to the buyers
- efficiency
- environmental effectiveness
- budgetary good practice
- market friendliness
- simplicity and responsiveness to projects' needs

Project-by-project versus programmatic model of GIS

8.3 Some buyers may prefer the Green Investment Scheme to be structured as a portfolio of specific, individually pre-selected projects—similar to a bundle of individual Joint Implementation projects. This approach gives buyers more direct control of the project (reputational) risk, and perhaps the opportunity to influence the procurement of goods and services from the AAU revenue in favor of buyer-owned firms. Disadvantages of the project-by-project approach are higher transaction costs and lower efficiency, especially in Latvia because it has limited potential for larger projects. However, this approach may still have comparative advantage for large single projects in host countries that lack capacity to prepare and supervise project implementation.

8.4 A programmatic (portfolio) approach implemented through local financial intermediaries can reach many smaller projects at lower transaction costs. Local financial institutions may have better access to small dispersed project owners and lower costs for project identification and appraisal. Lower transaction costs to all parties, including final beneficiaries, means that funds can be disbursed more efficiently than if buyers or investors had to validate, appraise, and monitor every sub-project. Finally, the programmatic approach mitigates project risk—if one project in a pipeline fails to deliver environmental benefits, it can be easily replaced.

⁷⁵ World Bank guidelines are useful even for local financial institutions that do not provide financial intermediation services.

8.5 Latvia's national institutions have strong capacity to control sub-project risk. Furthermore, most of the GIS programs are likely to consist of many smaller projects. Therefore, Latvia may want to propose a core GIS design based on programmatic approach implemented by competent national institutions. However, this core design should enable transparent appraisal, monitoring, and reporting at the individual sub-projects level to single-out specific larger projects, should this be required to meet buyer preference.

One versus more GIS fund managers

8.6 The GIS fund could be managed by one or more agencies. A single fund manager would be easier to supervise and control and could ensure more consistent performance standards for all programs included in the GIS. However, managing different programs requires different technical and financing structures, tailored to specific project sponsors and to different project types. Sponsors risk profiles and capacities to prepare projects may differ and project types may vary in cash flow profile, technical, environmental, and institutional risks.

8.7 Therefore, even a single GIS Fund managing agency may need to establish different "windows" to manage different project types. Even if financial due diligence is conducted by different agencies, similar standards should be maintained across sectors and programs. In some instances, technical aspects or management of whole programs can be delegated to third parties such as specialized government agencies, sub-national governments, private firms, or environmental NGOs, if they have specific skills and better access to projects.

Measures to ensure sound expenditure management

8.8 The legal instrument (contract or government decree) between the government of Latvia and local financial institution is the most transparent and effective tool to ensure sound GIS management. For practical reasons the Cabinet of Ministers can mandate one ministry (e.g., Ministry of the Environment) to sign and execute contracts with a fund manager. As a legal instrument the management contract should specify performance indicators for management services, sanctions for under-performance, and include a detailed Operational Manual, which should specify criteria and procedures for project appraisal and selection, rules for use of AAU funds, disbursement terms, and monitoring and reporting requirements. An Operational Manual standard template for a GIS expenditure management is in Annex 7.

8.9 In specifying terms for this legal document the Government should take into account environmental policy framework, fiscal policy context, and the development impact of the country's financial sector, with the objective of avoiding distortion in financial markets, interest rates, or efficient resource mobilization and allocation.

8.10 The World Bank guidelines for financial intermediaries can provide a useful framework for designing a GIS Fund. Public expenditure programs should be...

- transparent, targeted and capped;
- funded explicitly through the government budget or other sources subject to effective control and review;
- fiscally sustainable;
- a level playing field for all directly competing financial intermediaries; and
- economically justified, or demonstrate least-cost method to achieve objectives.

8.11 Incorporating these principles into a GIS design may be particularly challenging if financial intermediaries involve government-owned financial institutions, such as public environmental funds.⁷⁶

8.12 The GIS Fund managers should be viable institutions, having...

- adequate profitability, capital, and portfolio quality, confirmed by financial statements prepared and audited according to international accounting and auditing principles;
- acceptable financial performance;
- appropriate capacity, including staffing, for carrying out subproject appraisal (including environmental assessment) and for supervising sub-project implementation;
- capacity to mobilize domestic (and preferably foreign) resources;
- adequate managerial autonomy and commercially oriented governance (particularly if state-owned or state-controlled institutions are involved); and
- appropriate prudential policies, administrative structure, and business procedures.

Supervision and governance

8.13 Accountability requires a clear distinction between supervision and governance of the GIS Fund and its executive management.

8.14 Supervisory or governing boards are essential to strategic programming, priority-setting, establishing operational standards and procedures, performance evaluation, supervision and control. International good practice stipulates that the political process is legitimate and important to programming and supervision but should not impede or influence appraisal and selection of individual projects; instead these functions should be conducted by an operationally autonomous technical agency. Exceptions may be large projects with strategic national importance.

8.15 The transparency and accountability of the governing/supervisory board of the GIS Fund increases if key stakeholders are represented and if interest groups balance one another. Consideration should be given to involving non-environmental authorities, parliament and non-governmental organizations. The governing board should also be open to buyers' representatives if they require it. Arrangements proven by the Polish EcoFund, which manages debt for environment swaps, can be used as a model for engaging foreign sponsors in oversight of an environmental expenditure program. However, involving buyers in a governing board makes them co-responsible for GIS performance, perhaps raising concerns about the legal and reputational consequences of this shared responsibility. Participation in a consultative board comprising all foreign participants may be an alternative.

8.16 Irrespective of the supervisory body, the GIS Fund will need to be audited regularly by both independent chartered accountants and state auditing services. In addition to financial audit, a performance audit should be conducted periodically to evaluate how the GIS Fund achieves the objectives of the GIS agreed with the buyers.

⁷⁶ So far the World Bank has taken a pragmatic approach to public environmental funds; they can be useful financial intermediaries if they meet high standards of governance, transparency, fiscal prudence, financial viability, and management efficiency.

Public or private GIS Fund managers

8.17 The GIS Fund manager can be a private entity or a public financial agency.

8.18 The GIS Fund management can be outsourced—preferably through a competitively awarded management contract—to a private entity (professional fund manager). Private GIS Fund operators would have to provide financial, technical, and environmental appraisal skills, and adequate assurance of post-implementation monitoring, reporting, and impact evaluation. The private entity can be a commercial bank, investment fund, or consortium of commercial banks and consulting firms.

8.19 The second option is to delegate the GIS Fund management to existing or newly created government or government-controlled agencies, using a management contract or administrative order.

8.20 Any GIS Fund manager must meet the same high performance standards, including transparency, efficiency, and accountability. Usually, private fund managers are more operationally efficient and public fund managers are more accountable, in particular for the non-commercial program objectives. Financial management skills (including due diligence) are typically stronger in the private sector, while environmental due diligence is often better done by a public financing agency. Usually, commercial banks lack experience with environmental projects, in particular they lack incentives and resources to conduct appraisal of environmental effects, post-implementation monitoring, and impact evaluation.

8.21 Therefore, consultations with Latvian public and private stakeholders revealed that the commonly preferred option was to vest core GIS Fund management functions in an existing government-controlled corporate financial institution—the Latvian Environmental Investment Fund. The next section discusses this option in more detail.

8.2. OPTIONS FOR MANAGING A GIS FUND IN LATVIA

Latvian Environmental Investment Fund (LEIF)

8.22 Preliminary research suggests that a prospective candidate for the GIS management agency is the Latvian Environmental Investment Fund (LEIF) (see Box 13). It is a limited liability company established by the government and supervised by the Ministry of the Environment. Established in 1997, the LEIF soon attracted capital from the European Union PHARE program and a credit line from NEFCO (Nordic Environmental Finance Corporation). The LEIF operates as a revolving fund issuing mainly soft loans to finance small- and medium-size environmental and energy efficiency projects. Its main clients are municipalities, municipal corporations, and private firms to whom the LEIF on-lends funds from the credit lines extended by bilateral financial institutions, such as NEFCO or KfW. The LEIF also provides project management and consulting for municipalities and municipal enterprises. According to LEIF management these services are financed out of LEIF income and are free of charge to customers.

Box 13: Latvian Environmental Investment Fund: legal profile

A limited liability company called the “Environmental Investment Fund” is acting in accordance with the Order of Cabinet of Ministers No.64 on Non-Profit Organization, State Limited Liability Company “Environmental Investment Fund” (issued on 12.02.1997.) and order of Cabinet of Ministers No.610 On Reorganization of Non Profit State Limited Liability Company “Environmental Investments Fund” into Limited Liability Company “Environmental Investments Fund”, issued on 08.09.2004., as well as articles of association of limited liability company “Environmental Investment Fund”. The government of Latvia represented by Ministry of the Environment is the only stakeholder of LEIF. The LEIF has an established clear legal status of a commercial limited liability company pursuant to the *Commercial Law*.

The mandate of the Environmental Investment Fund is to reduce environmental pollution, promote the implementation of environmental protection projects and to increase the capacity of municipalities and commercial organizations in preparing and carrying out qualitative and effective projects from their idea to realization. The Fund’s activities are directed to achieving the maximum environmental improvement, investing financial resources in implementation of environmental infrastructure development projects.

Project coordination—the Environmental Investment Fund distributes financial resources; provides qualitative project identification, and supervises project implementation.

8.23 Following a brief institutional review and stakeholders’ consultations, the study team concluded that the LEIF seems to meet most criteria for OECD good practice for environmental expenditure management, and World Bank criteria for eligible financial intermediaries. In 2004, the LEIF received the certificate ISO9001⁷⁷ of quality management systems. LEIF enjoys a good reputation among a wide range of public and private beneficiaries and has adequate experience and credibility to manage public funds used for environmental and energy efficiency projects. The LEIF could administer the GIS on a cost-recovery, non-profit basis.

8.24 LEIF could be appointed by the Cabinet of the Ministers or Ministry of the Environment through performance-based administrative order or management contract. Management contract between the government and the LEIF is generally preferred as a transparent instrument that sets the right incentives to the fund manager.

8.25 The benefit of LEIF’s direct appointment by the Government is administrative and legal simplicity because it can be done within the present legal system. Latvia has an established practice of delegating government functions to state-owned commercial companies. Necessary regulatory changes can be limited to the Statute of the LEIF.

8.26 The present project pipeline managed⁷⁷ by LEIF (with its share capital of LVL 4.4 million) is small compared to the potential size of the GIS (which may amount to several hundred million US\$). Therefore LEIF will need significant capacity building—number of staff, skills mix, information systems, operational procedures—to meet the demands of a much larger and more diverse portfolio.

Other agencies considered

8.27 Another potentially eligible agency is the Latvian Environmental Protection Fund (LEPF), which is a budgetary government entity fully integrated into the structure of the Ministry

⁷⁷ ISO 9001 Quality management systems is intended for use in any organization that designs, develops, manufactures, installs, and/or services any product or provides any form of service. It stipulates requirements that an organization must fulfil to achieve customer satisfaction.

of the Environment (under the Investment Department). LEPF plays an important role in co-financing small institutional strengthening and research projects as well as selected infrastructure projects funded by the EU structural funds. Its role in GIS management can be limited, because LEPF lacks adequate operational autonomy and project identification skills to qualify as a GIS Fund manager. However, it may play a role in managing financial flows between the budget and the LEIF, if deemed necessary.

Governing (Supervisory) Board

8.28 Latvia may need to establish a governing/supervisory body in the LEIF to strengthen accountability for much larger expenditures than are currently managed by the Fund. The present LEIF statute does not include a separate governing or supervisory board, instead it has only a three-member management board (Board of Directors). The Ministry of the Environment conducts supervision through a high-level representative. Under the present system, other stakeholders would not be able to effectively supervise how the AAU revenues are managed.

8.29 Under Commercial Law, the shareholder, that is, the Ministry of the Environment (as a trustee of a Government would need to appoint members to the Governing Board (the Council). To establish a Supervisory Board, the statutes of the Environmental Investment Fund would need to be changed by a decision of the Cabinet of Ministers or the Ministry of the Environment. The Supervisory Board may consist of up to twenty persons, tasked with monitoring how AAU revenues are spent. Members of the Supervisory Board would be appointed by the Cabinet of Ministers or the Ministry of the Environment as a trustee. An AAU purchase agreement could establish the Latvian government's obligation to appoint buyer representatives to the Supervisory Board or an advisory body.

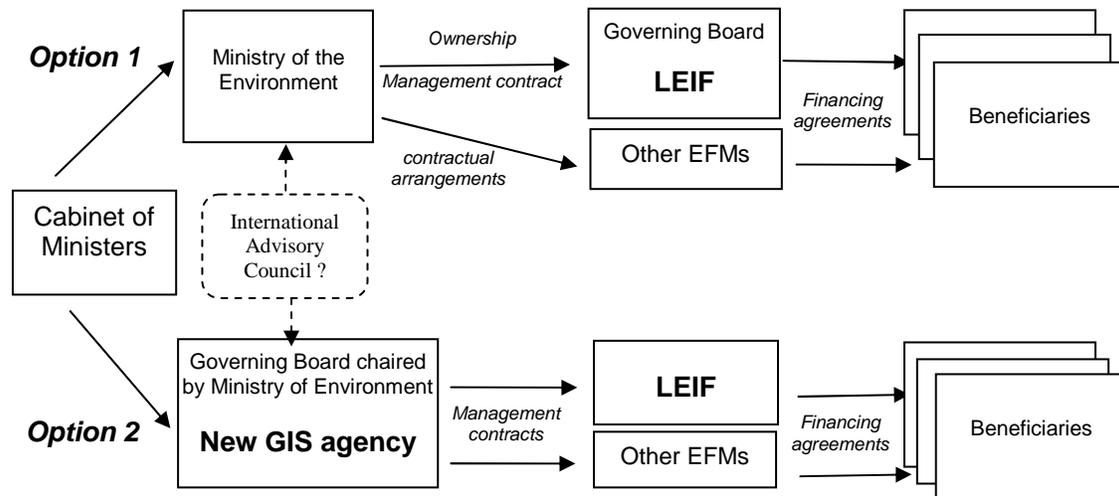
8.30 The Governing (Supervisory) Board would (a) adopt strategy and internal regulations of the GIS fund, such as the Statute (Charter) and Operational Manual, including criteria and procedures to evaluate and select projects to be financed; (b) oversee all Fund operations; (c) appoint the management service provider (or the Board of Directors if the GIS Fund is based on LEIF corporate structure); and (d) reserve the right to object to any projects selected by the executive manager on the grounds of non-compliance with Latvian law, GIS fund internal regulations, or AAU sale purchase agreements with buyers.

8.31 Stakeholders consultations have narrowed Latvia's options for GIS governing or supervisory body to... (see Figure 15):

Option 1: Establish a Governing Board within LEIF.

Option 2: Establish a Governing Board as a new public legal agency subordinated to the Council of Ministers.

Figure 15: Options for institutional set-up of the financing mechanism of the Latvian Green Investment Scheme



8.32 The first option is simpler because it requires no legal changes and relies on existing and tested institutions. However, awarding performance contract *and* also chairing governing Board may involve a conflict of interests. Because Ministry of the Environment is also the owner of the LEIF it would put itself in a position of both contractor and contracting agency.

8.33 The second option gives more accountability but is administratively cumbersome and risky. New agency could be established as a legal person under public law as part of the new law on international emissions trading. It can be subordinated directly to the Cabinet of Ministers or to the Ministry of the Environment. It could be a very light structure consisting of the Governing Board appointed by the Cabinet upon nominations by various government agencies and interest groups. Secretarial and logistical support could be provided by Ministry of the Environment or the LEIF. This new agency could report to the Cabinet and be chaired by Ministry of the Environment. The distinctive feature of this option would be institutional separation of governing and management functions. Governing Board would represent political agendas of stakeholders while Fund Manager (e.g., LEIF) hired by the Board would be insulated from political interferences. Institutional separation of those who supervise from those who manage clarifies who is accountable for what. The new agency would represent the Government (not just one Ministry) and as such would be more strongly accountable to the buyers and to the Latvian public. Separation also allows a transparent, arms-length, contractual relationship between the government agency and commercial fund managers (including LEIF).

8.34 The option of a new public entity may be legally burdensome. Most civil law countries can establish a "legal person in public law" through specific parliamentary act. Many environmental and energy efficiency funds in the CEE countries have this status. There are very few examples of similar institutions in the Latvian legal tradition, however. Alternative option may be for the new agency to be created by the decision of Cabinet of Ministers. It could also be established as a foundation. Foundations in Latvia are private organizations established pursuant to the *Law on Associations and Foundations*. The local legal expert stated that the status of a foundation is more feasible but this needs to be verified.

8.35 Under either option the Governing Board would need to represent stakeholders, a common institutional precondition for ensuring accountability. The respective ministries could nominate government representatives, including ministries—the Environment, Economy, Regional Development, or Finance. Environmental NGOs, business, and municipal associations could nominate independent experts.

8.36 The AAU buyers' role in governing the GIS program will need to be negotiated bilaterally. Some buyers are interested in having representatives in the supervisory body of the Latvian GIS. Buyers' interests could be represented in the Governing Board either by their official representatives or by independent experts (Latvian or international) who could be appointed by the Assembly of the Buyers (as in the Bulgarian Energy Efficiency Fund). The EcoFund, a Polish debt-for-environment swap fund is a good example of donor governments having their official representatives on the governing board (the Council) to exercise voting rights on specific projects. However, if buyers have Governing Board voting rights they would assume co-responsibility for the GIS operations. This is a mixed blessing because when buyers assume co-responsibility for governance, they may compromise the contractual right to claim compensation from Latvia in the case of non-delivery of greening results by the GIS Fund. An alternative option for buyers may be to participate in an international Advisory Council; the Council would lack voting rights but maintain the right to be informed on GIS operations performance and consulted on programming and strategic management issues.

Management

8.37 The Law on Structure of State Administration Section 40-47 stipulates that the State can delegate its administrative functions to other private or public entities, through a decision of delegation and underlying contract. Such contracts should be concluded between the State and the GIS Fund executive manager, foreseeing that the managing agency will appraise and select projects, coordinate, and supervise project implementation and that any disbursement would require recommendation of the Fund given to Ministry of the Environment.

8.38 Daily operations under the GIS would require a professional fund manager (FM) for administration, including identifying, evaluating, financially structuring, and monitoring sub-projects. Relying on the Operational Manual, the fund manager would ensure a sound project portfolio in terms of sectors and risks. The Ministry of the Environment (Option 1) or the Governing Board under a service contract (Option 2) would appoint the fund manager.

8.39 Different types of project pipelines and greening programs would require different project cycle arrangements and technical expertise. Therefore a few fund managers could administer separate programs or one fund manager could administer several “windows” of the entire GIS portfolio. Some functions and responsibilities may also be outsourced to other agencies—public or private. Furthermore, the LEIF lacks substantial experience in managing non-investment projects such as environmental education, public institution capacity building, training, or technical assistance. Instead of developing internal LEIF capacity, other organizations could be appointed to deal with such projects, for example, NGOs and scientific agencies. Some programs that can be financed on fully commercial terms may be contracted out to competitively selected local banks and project developers.

8.40 The LEIF could also outsource project management tasks to commercial banks (e.g., due diligence and evaluation of financial viability of project sponsors) or to external consultants (e.g., technical evaluation of project proposals), instead of building in-house capacity. Although the LEIF itself will not assume project credit risk, it will have an interest in evaluating the risk of

non-delivery of environmental benefits due to inadequate financial viability of projects or poor financial standing of project sponsors. Final approval of the GIS financing should be conditional on the availability of funds to finance the investment, which will be provided by financial institutions, project sponsor, or investors. The initial set-up and incremental running costs of the LGISF, including salaries and service fees for outsourced activities could be financed from the GIS management component of the pilot AAU transaction.

8.41 Details of the governance and management structure will be elaborated in the Statute (Charter) and in Operational Manual, which should be prepared during the GIS implementation phase. See Annex 7 for a tentative outline of an Operational Manual.

Relationship with stakeholders

8.42 Pro-active communications will be essential to effective and timely utilization of available GIS funds. The fund manager will be responsible for marketing strategy and project identification campaigns to inform the sub-project sponsors and co-financing partners about opportunities and services provided by the LGISF.

8.43 Financing agreements with sub-project sponsors could be signed by the authorized executive officer of the FM, and would become effective upon non-objection by the GB. The financing agreements may be governed by the *Civil Code* as presently applied for the financing by the LEIF.

8.44 Some project types could have agreements that also include commercial banks, which would enable project sponsors to sign only one agreement, and to deal with only one financial services provider. Framework agreements for project selection may also be concluded with selected project developers who have a capacity to conduct effective project identification and adequate appraisal.

Financial reporting and monitoring

8.45 The GIS fund manager should produce annual financial reports for the Latvian authorities and the buyers. Financial reports should be prepared in accordance with the same accounting rules used for statutory reporting under Latvian law. These standard financial reports would feed into a comprehensive financial management report prepared to the international standards to be used for GIS monitoring and supervision. The financial management report format would be in the Operational Manual and should include the following essential building blocks:

- Sources and uses of funds (income statement);
- Balance sheet;
- Procurement monitoring reports; and
- Sub-project progress reports.

Auditing

8.46 Financial reports should be audited by independent international chartered accountants. Environmental and physical progress reports would be subject to environmental performance audits conducted by an independent private company or public agency. In addition, the GIS Fund would be subject to statutory audits and fiscal controls in Latvian law.

Timeline and termination of a GIS Fund

8.47 The validity of a management contract with the LEIF could be time-bound by either the period of availability of AAU revenues or other fixed period, after which a review of the management operations would be conducted. The review could identify potential for commercialization of certain GIS Fund operations. It is expected that once existing market barriers are removed, commercial institutions can finance most greening investments on a sustainable basis (except for those that are not commercially sustainable but provide significant public benefits). When this happens, FM of some programs could be awarded to competitively-selected commercial entities. In this case, the fund management fee would need to be included. Furthermore, changes to the managing agency may need buyer approval under the AAU purchase agreement.

8.48 The AAU revenues are expected to flow in installments to the special account during 2007–2013. The payment schedule will depend on the timing and terms of AAU sales transactions but the LGISF is expected to administer AAU funds until their final disbursement envisaged in 2017. Then the GIS Fund should continue to monitor and supervise a portfolio of financed projects and ensure adequate reporting until the end of the crediting period stipulated in the AAU purchase agreements.

Capacity-building needs

8.49 Financial institutions that do not meet all the eligibility criteria for being GIS Fund managers (including LEIF) may participate in the GIS if they agree to an institutional development plan that includes a set of time-bound monitorable performance indicators and provides for a mid-term review of progress. Such a plan could be prepared and implemented during the GIS implementation phase and could potentially be financed from AAU revenues.

9. FINANCING SUB-PROJECTS UNDER THE GIS

9.1 There are two distinct aspects of financial flows under the GIS:

- Payment flows from the AAU buyers to Latvia; and
- Financial flows from Latvia's budget to sub-projects through GIS management agency.

9.2 Payment flows from the buyers to Latvia were discussed in Chapter 5. This chapter discusses the second aspect—a mechanism to disburse AAU revenues from Latvia's budget to final beneficiaries.

9.1. PRINCIPLES OF FINANCING SUB-PROJECTS IN THE GIS

9.3 The choice of financing instrument to provide financial support for sub-projects by the GIS management agency should be driven primarily by pragmatic considerations. Financing instruments should be designed to make the eligible projects more financially viable, however, they should also send the right incentive signals, encourage efficient, results-oriented behavior, and avoid distortionary effects in the economy. The relatively large volume of public revenues expected from AAU trade and already heavy-handed government interventions, in particular on the municipal credit market, indicate that AAU sale proceeds should be disbursed to beneficiaries in a manner that avoids competition with local financial markets and conveys strong performance incentives to project sponsors. The established and well functioning commercial lending market would be the most efficient source of financing for underlying capital costs of the greening sub-projects. The GIS financing instruments should augment commercial sources of bank loans rather than displacing them.

9.4 Therefore the GIS financing instruments should be kept relatively independent of the rest of project financing, i.e., sub-projects that may be eligible for GIS payments irrespective of the financing type (e.g., equity or debt) of underlying project capital costs. Eligibility to receive GIS payments on top of other types of state support should be carefully evaluated to avoid excessive subsidies, crowding out of private finance, or long-term dependency on public funds.

9.5 The GIS payments can provide important incentives for project developers to find solutions that would bring not only economic but also environmental and social benefits. It is therefore recommended to limit the number of GIS payment formulas based mainly on environmental benefit delivered by the project, but also influenced by social and wider economic significance.

9.2. PROJECT TYPES AND OWNERS

9.6 The financing instruments (financial products) will need to be tailored to the profile of project types and project owners. Table 12 shows examples of some anticipated project types and

sponsors that may need financing schemes customized to their liquidity position, credit capacity, or private incentives to undertake publicly beneficial projects.

Table 12: Project types and project sponsors

Project types	Project sponsors
Energy efficiency of industrial process and buildings, investments in power supply (CHP, fuel switch, etc.)	Private sector corporations, SMEs
Production and promotion of bio-fuels	Private sector corporations, SMEs
Production of renewable energy (e.g., water, wind, geothermal)	Private sector corporations, SMEs
Rehabilitation of existing DH systems – heat production process and distribution networks, public transport	Municipally-owned and private sector corporations
Recovery and use of biogas from landfills and WWTPs	Municipally-owned corporations
Energy efficiency in residential buildings	Housing cooperatives or other forms of legal entity created for the building ownership and maintenance
Energy management in public buildings. Schools (municipal), hospitals	Usually state or municipally owned enterprises, state or municipalities

9.3. SCHEDULING OF PAYMENT TO SUB-PROJECTS

9.7 Under a programmatic approach to a GIS, buyer transfer of payments to Latvia does not have to coincide with fund transfers from Latvia’s budget to final beneficiaries. In principle the GIS management agency could have two main options for scheduling payments to final beneficiaries.

- Upfront payments (grants, loans, equity) to initial capital investments; and
- Payment upon delivery of greening results by the sub-projects.

9.8 Upfront payments may mitigate the problem of insufficient equity and lack of access to commercial credit in certain projects and sectors (e.g., housing cooperatives). However, simple advance payments may not provide sufficient incentive for project sponsors to achieve project environmental outcomes stipulated in the financing agreement. Furthermore, it could potentially compete unfairly with financial products offered by commercial financial institutions. To minimize potential downsides prerequisites for advance payment, appropriate amount and payment modality/timing need to be carefully designed.

9.9 The preferred mode of disbursement to final beneficiaries is upon delivery of project results. Such performance-based payment method is a strong incentive for timely delivery by project sponsors of the expected project output. This method would also enhance the environmental performance of the overall GIS portfolio (hence reducing reputational risk to buyers). If sub-projects cease to deliver expected environmental benefits at any time and for whatever reason, the unused balance can be easily reallocated to eligible projects in the program without costly and time-consuming recovery of total funds. Generally, payment upon delivery of results would increase the discipline and accountability of project sponsors.

9.10 However for credibility, disbursements to project sponsors should be made instantly, avoiding bureaucratic hurdles, as soon as deliverables are submitted and verified. This would also

create credibility in the GIS arrangement and enable commercial lenders to use GIS payments as a credible source of cash receivable.

9.11 Notwithstanding these advantages of payments on delivery of results, international and Latvian experiences show that certain types of projects may require that a minor portion of payment be disbursed to project sponsors during project preparation or investment phase against specific milestones, otherwise projects are unlikely to get off the ground. The final payment design and modality will be tailored to each cluster of programs after careful due diligence of project financing needs.

9.4. INSTRUMENTS TO DISBURSE AAU REVENUES TO FINAL BENEFICIARIES

9.12 The GIS management agency could transfer AAU revenues to final beneficiaries in various forms.

- Equity;
- Soft (subsidized) loans;
- Interest or annuity subsidies;
- Credit guarantees (credit enhancement);
- Upfront grants—non-refundable grant disbursed to projects upfront; and
- Performance-based grants—non-refundable grant disbursed to projects during their lifetime upon delivery of agreed results or after meeting specified performance criteria (typical structure for the carbon finance deals).

9.13 Technically, financial instruments (upfront grants, loans or credit guarantees) can be designed to provide the same subsidy equivalent.⁷⁸ However, fiscal and macroeconomic impacts, and microeconomic incentives conveyed by equivalent forms of subsidized financing can differ significantly.

9.14 Equity is not always what project developers need most. Equity is often more expensive than debt and in many sectors identified for GIS there are already many private green investment funds on the market competing for good projects. Therefore, equity provided from public funds may distort market. In Latvia, lack of equity may be a serious constraint to implementation for some greening projects, mainly in the residential sector. However, equity investments require intensive involvement of GIS management with project management, which would incur additional costs, and complicate project management, supervision, and monitoring.

9.15 Interest subsidies can distort and inflate interest rates; they require careful design to prevent the subsidy from being captured by the credit provider.

9.16 There is relatively low demand among Latvian commercial banks for credit enhancement through guarantee instruments. Banks are ready and willing to take project-related risks. There are several types of projects with high greening potential that have sufficient collateral and do not need additional guarantees.

9.17 Targeted credit programs (e.g., soft loans offered by the GIS management agency) are often preferred by country environmental authorities and environmental fund managers because over time, loans can trigger a larger total volume of investments than grants. Unlike grants,

⁷⁸ For example under the EU state aid rules the same restriction applies irrespective of the form of state aid – be it e.g., soft loan, public equity, grant or tax waiver. For all these forms the net grant equivalent must be calculated to compare state aid intensity across different forms.

targeted credit programs revolve (if repaid) generating revenues with potential for reinvestment in new projects. In principle soft loans may play a positive role temporarily during the incubation phases of credit market development, when specific market imperfections deter financial institutions from certain market niches (e.g., energy efficiency or environment). Appropriately designed and targeted credit program can redress unfair chances of environmental projects in competing for access to credit. Financing environmental projects with loans usually encourages better financial discipline than financing them with matching grants. Implementation is often swifter and project potentials are realized more fully because loans send the right signals to project owners and the projects are vetted through more stringent screening. Targeted credit programs tend to encourage stakeholders to hold managers accountable for project results because debt has an opportunity cost. However, similar arguments hold for the performance-based grants, if they leverage commercial bank credit. Incentives for financial performance are the same and for environmental performance even stronger.

9.18 Targeted soft loans may introduce more distortions than they are supposed to rectify. Revolving soft loan programs are easy to establish but difficult to phase out even when no longer necessary. The danger over time is that perpetual soft loans can begin attracting projects for which social (economic) rates of return are lower than the opportunity costs of public funds. Furthermore soft loans compete unfairly with commercial bank products, especially in mature credit markets, and tend to dominate certain market niches and crowd out commercial banking institutions. In Latvia, adequate credit is available at competitive interest rates from the highly liquid commercial bank lending market. According to Latvian financial experts, there is no need for alternative public sources of lending. Moreover, the cost advantage of subsidized interest rates may be offset by the additional administrative burden to monitor and ensure delivery of environmental results by the lending agency. There is a risk that subsidized public lending would crowd out available and more abundant private debt financing.

9.19 Grants are a transparent form of subsidy that can be targeted precisely at the non-revenue generating project components. Grants are often considered the most market-friendly form of government financing because they do not compete with financial products offered by private financial institutions. Grants can be blended easily with private finance and leverage sustainable commercial funding for environmental projects. However, investment grants that are paid to projects upfront carry incentive problems, making it difficult to hold project owners accountable for financial and environmental project results.

9.20 Performance-based grants paid to projects in periodic tranches, upon delivery of verified and measurable milestones and results would generally be a preferred instrument. Ideally performance-based payment should be disbursed in proportion to environmental and social benefits delivered by projects. Performance-based payments create strong incentives for financial and environmental project performance and prompt implementation. Since a large share of energy efficiency or renewable energy projects suffer from insufficient cash flow during the initial years of project operations grants could help because they can be structured to use as collateral to attract commercial credit. Performance-based grants would improve project cash flow, financial viability, and the willingness of commercial banks to finance such projects.

9.21 Unfortunately performance-based grants do not improve project cash flow during the investment phase. Therefore, partial upfront disbursement instruments (investment grants or soft loans) may be considered for some projects where the access to credit and equity during project implementation is limited, or significant public benefits and externality are generated. Investments in energy efficiency improvements of old Soviet-built blockhouses are an example of a project that may justify a small upfront matching grant. Upfront grant payments of up to 20

percent, for example, of total investment cost may encourage housing cooperatives and multiple apartment owners to cooperate in project development. Typically such households are unfamiliar with borrowing for housing improvement and historical payment patterns have resulted in a lack of accumulated funds for the equity contribution—a common problem for housing cooperatives. Upfront grants would reduce the project’s need for the equity contribution. It is also efficient if these upfront grants are proportional to the project environmental benefits (public goods).

9.5. FINANCE UNDERLYING UPFRONT INVESTMENT COSTS

9.22 The GIS Fund disbursement instrument should not depend on which instrument project owners use to finance upfront capital investments because it could distort their choices. However, it is always prudent to require project sponsors to invest some equity as evidence of commitment. Equity provides incentives for project sponsors to be accountable for project performance. Equity amounts may differ according to sponsors’ financial strength and liquidity. Debt financing of initial investments would also be preferable as it would enhance financial discipline and implementation efficiency through commercial banks’ credit screening. As a rule, mixing many sources of public funds is fiscally imprudent and inefficient unless clearly defined co-financing requirements are in place, e.g., for the EU structural instruments or export credit agencies.

9.6. ROLE OF LOCAL SOURCES OF FINANCING IN LATVIA

9.23 *Commercial banks* in Latvia are well developed and competitive, offering affordable interest rates and relatively long maturities. Banks have proven their ability and willingness to take risks related to project performance. Local commercial banks are active in financing a variety of borrowers—small and medium enterprises (SMEs) and large corporations; housing cooperatives and other multi-unit housing; municipally owned companies especially if municipalities are unwilling and unable to issue project guarantees. Latvian banks have limited ability to credit municipalities due to the competition from Treasury loans. To maximize the benefit of GIS payments, local banks should have a clear understanding of the GIS payment structure and the risks involved in assessing the value of projected cash-flow as additional collateral.

9.24 *State Treasury loans* are the main source of financing for municipalities and usually the cheapest, thus preferred. Municipalities in Latvia are allowed to borrow from non-Treasury financial institutions (e.g., commercial banks) *only* if a lender offers lower interest rates than the Treasury loan, and even then special permission is required from the Ministry of Finance.

9.25 *EU structural funds* have been generally unavailable to energy efficiency projects so far. This may change in the 2007-2013 programming period. Eligibility of proposed GIS projects for EU structural funds is discussed in Annex 6 in the context of specific programs. If projects are eligible for a significant share of EU non-refundable grant financing, the GIS payments would not provide much valued added.

9.26 *Latvian State Budget* is too short to co-finance investment projects unless co-financing is a requirement to absorb EU funds. For example, the Housing Agency has been unsuccessfully requesting a budget allocation to improve energy efficiency in multi-story residential building and the Ministry of the Environment’s efforts to get budget support for developing renewable energy sources remain largely unfulfilled.

9.27 *Municipal budgets.* Funding from municipal budgets will likely be limited, although an estimated 5 million Euro is available for district heating network rehabilitation.

9.28 International Financial Institutions (IFIs), *bilateral donors and export credit agencies* may provide credit lines of credit and risk guarantees. Their role in Latvian GIS is likely to be limited however, due to the following reasons:

- IFIs' credit or guarantees may require a host government counter-guarantee (e.g., IBRD, EBRD) without which the IFI resources may be too expensive for the highly competitive Latvian lending market;
- Projects targeted by GIS are likely to be small and medium-scale and IFIs are not well adapted to provide efficient service without a local financial intermediary;
- The local banking market has adequate confidence in the institutional credibility of the Government and its agencies. Guarantees issued by IFIs may not significantly add value over Latvian Government guarantees;
- Most greening investments in Latvia will not involve significant foreign imports of equipment and technologies, which means that unless GIS transactions are tied to imports from the AAU buyer countries, there is little need for bilateral donors and export credit agencies.

9.7. DISBURSEMENT ARRANGEMENTS TO SUB-PROJECTS

9.29 Latvian stakeholders agreed that the standard arrangement of disbursements to sub-projects would be annual payments after project completion and verification of performance indicators. The GIS payment structure would be designed to leverage substantial additional financing for underlying capital investments by attracting commercial credit against the GIS cash flow and requiring equity contributions from project sponsors. Therefore the total investment implemented will be a multiple of the available GIS funding. The LGISF funds are expected to be disbursed in installments during the loan-maturity period or the project-payback period.

9.30 Project owners could take short or medium-term loans from local banks or vendor credit to finance the capital and operating costs during project implementation. The banks should consider partial upfront GIS payments as equivalent to owner equity in the project. Also contractors and equipment suppliers can be expected to accept upfront GIS funds as a down payment pending full remuneration after the work is completed, especially if the payment could be transferred directly to the contractor's (or even creditor's) account against their invoices.

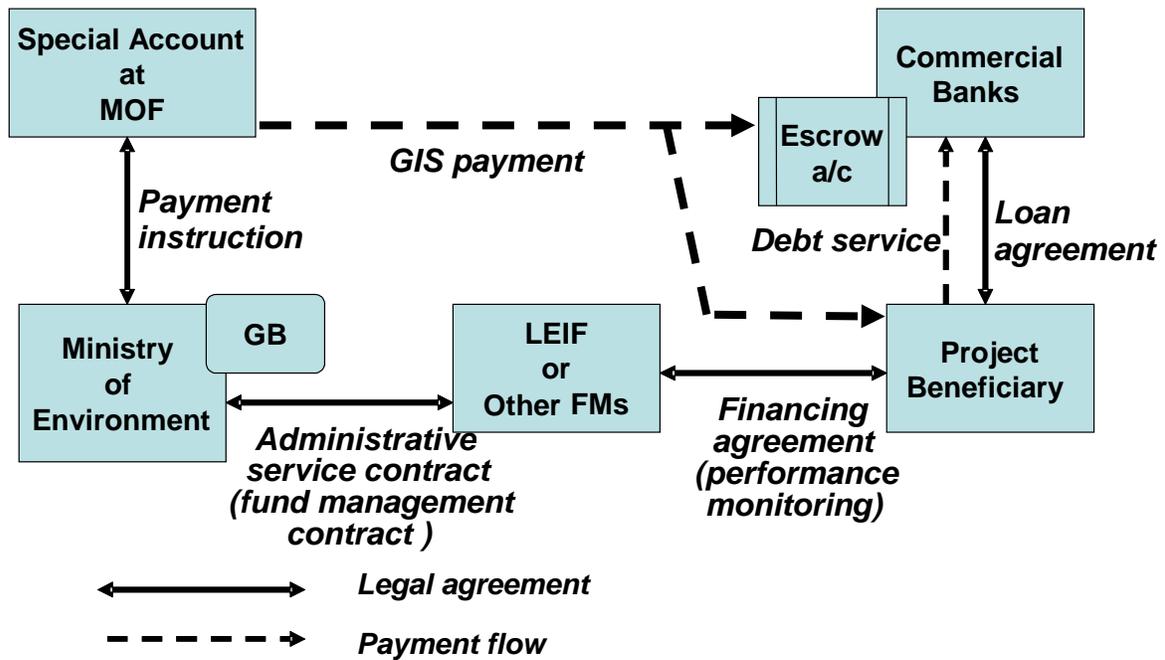
9.31 The following GIS steps in processing GIS payments appear to be realistic on the basis of consultations in Latvia and the World Bank experience.

- (a) Project beneficiaries would apply for the GIS financing to LEIF (or other fund management agencies).
- (b) Under the fund management contract with Ministry of the Environment, LEIF will appraise the project proposal, if positive, LEIF would submit it to the Governing Board (GB) for approval.
- (c) Upon project approval by the Governing Board, LEIF will enter into the financing agreement with the project owner to set the detailed disbursement terms and payment triggers (performance indicators).
- (d) The project owner will use the contract with LEIF to raise commercial bank loans to finance the project and will hire contractors to implement.
- (e) After project implementation, at the milestones specified in a financing agreement, the project owner will submit financial and performance reports to LEIF through verification agency.

- (f) Following verification and non-objections by the LEIF, the project owner would send an invoice to the LEIF; and it would submit a disbursement request to Ministry of the Environment; it would forward payment instruction to Ministry of Finance (MOF).
- (g) The MOF would disburse the requested amount from the special account in the Treasury to the LEIF for further disbursement to the project owner, or to the escrow account with the commercial banks for direct payment for debt service to commercial banks or to contractors of works.

9.32 The payment flow scheme and contractual arrangements are illustrated in Figure 16.

Figure 16: Institutional Arrangement and Payment Scheme



10. ENVIRONMENTAL INTEGRITY OF THE GIS

10.1 This chapter describes roles, tasks, and capacity of the competent authorities that would monitor, verify and report on environmental effects. It provides an overview of the possible procedure to monitor, verify and report environmental results of the GIS projects.

10.1. PRINCIPLES

10.2 The purpose of the GIS is to ensure buyers and the public that AAU revenues would generate genuine and significant environmental benefits. Therefore, the system that delivers the GIS environmental integrity should be based on the following principles:

- (a) Credible to buyers and the Latvian public;
- (b) Accountable for environmental effects of the GIS;
- (c) Monitoring and verification separate from the GIS management agency to avoid a potential conflict of interest;
- (d) Conform with legal framework, procedures, accepted standards, and international good practice;
- (e) Simple, low-cost and reliant on national institutions as far as possible;
- (f) Integrated approach to environmental benefits.

10.3 From the point of view of the sellers, the high standards of environmental integrity can increase the value and marketability of AAUs. But credible GIS is also crucial to enhancing the overall environmental integrity of the Kyoto Protocol, helping seller countries to decrease carbon-intensity of their economies, and buyer countries to credibly meet their emission targets. Ideally, the GIS should also demonstrate to non-Annex B countries that it pays off to adopt quantitative emission reduction targets in the UNFCCC framework, thus supporting negotiations on future commitments.

10.4 Since the menu of greening measures may be wide (e.g., energy-efficiency, bio-gas recovery and utilization, awareness-raising and capacity-building) specific requirements for monitoring, verification and reporting will need to be adopted for each potential program. Using, to the extent possible, monitoring and reporting requirements that exist under national legislation would be advisable. Some binding requirements can be simplified for small installations that are not covered under category A and B environmental permits.

10.5 The following environmental monitoring principles may be applied when developing regulatory documents (GIS Monitoring, Verification and Reporting protocol):

- (a) Environmental impact monitoring should be conducted by installation operators as an ongoing, integrated, corporate process;
- (b) Monitoring should be based on available data;
- (c) New monitoring measures should supplement existing monitoring frameworks established under national legislation;

- (d) Collection and interpretation of data should follow sound statistical principles; and
- (e) Regular monitoring should be performed—at least once a year.

10.2. POTENTIAL ENVIRONMENTAL VERIFICATION ENTITIES IN LATVIA

10.6 The agency that verifies project results should be separate from the agency that appraises them to avoid a potential conflict of interest. Latvia could appoint an independent entity, public or private, other than the LEIF, to conduct verification.

10.7 Having conducted a brief institutional review, the study team has concluded that the administrative system of environmental management is well-designed, effective, and ensures sufficient communication with the public. The Ministry of the Environment has high-quality and skilled management and staff, is efficient cooperation with EU, and effective in implementing new policy initiatives. As an EU Member State, Latvia has implemented various EU Directives and Regulations with regard to GHG emissions monitoring and reporting. These measures are in accordance with EU legislation and should ensure buyer confidence.

10.8 Monitoring and verification of GHG emissions reduction will need to draw from private and public expertise as it falls outside of the core business of the State Environmental Service (SES). The SES's comparative advantage is local pollutants emissions control and their inspectors focus on large industrial installations covered by an integrated environmental permit under the IPPC Directive. Consequently they may not be suitable to verify emission of greenhouse gases. For example, private, nationally accredited verification companies verify CO₂ emissions from installations participating in the EU emissions trading scheme.⁷⁹

10.9 However, private verification of GHG emissions of GIS sub-projects may be unaffordable for owners of small projects, which will include most of the GIS pipeline. Therefore the study team concluded that for small projects spot verification (random) of project owners' environmental reports might best be conducted by SES inspectors (State Environmental Inspectorate). An independent environmental reviewer could conduct periodic reviews—annual or semi-annual—of reports prepared by the GIS fund manager to verify compliance with legally binding monitoring and reporting methodologies and procedures.

10.10 Although legally binding methodologies exist for environmental monitoring and reporting on the large installations covered by the EU Directives or where required by the Latvian law, this is not the case for small installations or for energy-efficiency measures, in particular for monitoring and reporting GHG emissions. Therefore, the Ministry of the Environment or Cabinet of Ministers—depending on Latvian regulatory culture—should develop regulations on legally binding methodologies for the GIS competent authorities that are robust, easy to apply, and based mainly on calculation rather than measurement. Complexity should be tailored to installation size and emissions volume. As an integral part of GIS design, Latvia could develop monitoring, reporting, and verifying protocols along with the Operational Manual for the GIS management agency, using AAU sales proceeds. Simplified versions of verification procedures for JI projects or EU ETS could be utilized in the GIS.

10.11 Existing government environmental enforcement and control agencies, namely the Regional Environmental Boards, which are the regional units of the State Environmental Service (SES) could conduct verification project-level environmental effects. Regional Environmental

⁷⁹ Annex 1 - Table with responsibilities for the EU emissions trading scheme.

Boards have a broad scope of activities including permitting and inspections. However since the frequent rotation of staff currently undermines this function, the incentive system and budget should be reconsidered to reduce staff turnover in REBs. Also the operational budget should be reconsidered if additional inspection activities are to be performed under the GIS. Details of key environmental management agencies are included in Annex 8.

10.3. PROCEDURE FOR MONITORING, VERIFICATION AND REPORTING OF GREENING

10.12 (Step 1) Project owners should perform monitoring and reporting according to the methodology stipulated by regulations. According to national legislation, some project types, such as energy efficiency measures in public buildings, may not require environmental permits; therefore separate monitoring reports should be designed. Periodically project owners would submit project environmental report to the Regional Environmental Boards of the SES.

10.13 (Step 2) The SES (Inspectors of Regional Environmental Boards) could verify reported monitoring results, submitted annually by the project owner. Reports can be scanned for essential data, and detailed verification can be random. Once verification is completed, the responsible inspector will prepare verification protocol and submit it to the Executive Fund Manager, who should receive electronic copies of monitoring and verification reports, as well signed hard copies. For large projects and projects that combine JI and GIS revenues, third-party verification will likely be required.

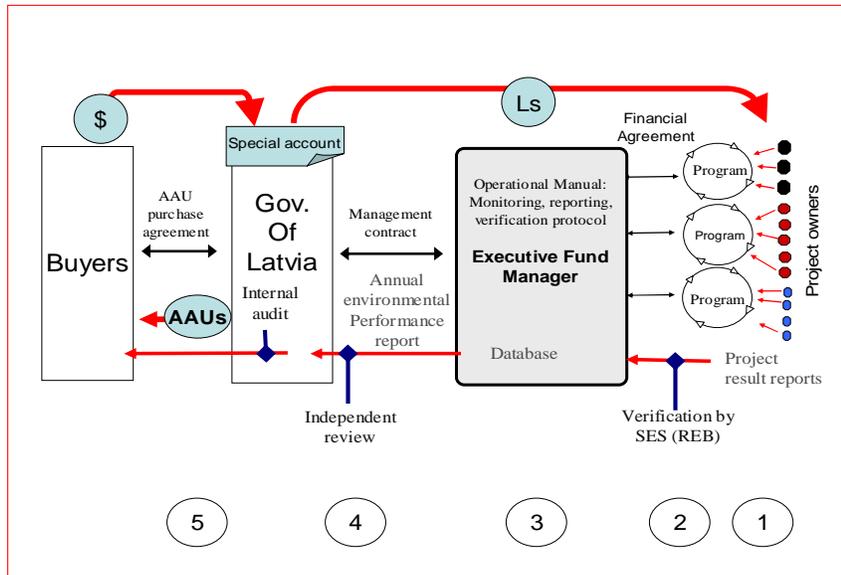
10.14 (Step 3) The Executive Fund Manager would collect and store reports in an electronic database publicly available through the Internet, then prepare an annual environmental performance report that would aggregate information on emission reductions and other environmental benefits achieved by the sub-projects. This report could contain program details, monitoring and verification summaries for each sub-project, relevant correspondence between project owners and competent authorities on monitoring and reporting, documents relating to responsibilities of project owner's on-site staff in connection with GHG monitoring and reporting, and quality assurance or control procedures (if required).

10.15 (Step 4) An independent review of the annual environmental performance report is proposed as an instrument to ensure that report data are accurate and comply with approved monitoring and reporting. The review should address the reliability, credibility, and accuracy of the monitoring system, reported data and information relating to GHG emissions reduction and local pollutants if applicable. An independent entity should perform the review according to established requirements.

10.16 (Step 5) The reviewed environmental performance report would be submitted to Ministry of the Environment, which may want to apply other internal quality-assurance procedures (audits) before submitting the report to the buyers and making it public. The Latvian National Registry operator could try to link audited emissions data to specific AAU serial numbers, thereby demonstrating Latvia's compliance with greening obligations specified in the AAU sale/purchase agreement. Buyers would review financial and environmental reports and monitor the LGISF performance to ensure that AAU payments are used and managed according to AAU agreement provisions.

10.17 Figure 17 shows proposed procedures for GIS monitoring, verification, and reporting.

Figure 17: Environmental monitoring, verification, and reporting process for GIS



10.18 The Cabinet of Ministers determines the competence needed for independent auditors. It might require accreditation from the Latvian National Accreditation Bureau (LATAK). Audit report requirements should be developed. To prepare such requirements Latvia might want to consider the following issues:

- (a) What is the total amount of project types by category that are subject to environmental performance audit?
- (b) Which legal provisions—standards, regulations, audit guidelines and methods—are available to perform the audit?
- (c) Which accreditation is required? International?
- (d) What is the role of private verification agencies in JI and EU ETS projects in Latvia? (see Annex 11)

10.19 The Environmental Investment Fund would need to hire at least one additional person, considering the significant information and reporting requirements, in case the Fund has responsibility for GIS management. So far, there are only three technical project managers responsible for project evaluation and management.

11. RISKS, RISK SHARING, AND MITIGATION

11.1 Implementation of the AAU trading schemes will entail a multitude of risks related to both AAU trading and the successful execution of underlying projects which constitute conditions for AAU buyer future payments.

11.1. RISK ANALYSIS

11.2 Broadly categorized these risks are: AAU materialization, GIS implementation, and project implementation. Depending on the GIS design, these three types of risk may be interconnected and could trigger one another:

- **AAU materialization risk:** This risk could materialize for both sellers and buyers. Since potential AAU buyers are likely OECD country governments, their risk includes non-eligibility to trade; non-payment or insolvency seems less likely. For Latvia as a seller, the more critical risk is a failure to achieve eligibility compliance of for emissions trading under Article 17 of the Kyoto Protocol.
- **GIS implementation risk:** This risk arises during GIS implementation, particularly in connection with long-term reliability of the implementation framework, including operational transparency and green investment fund/agency autonomy, its financial management and payment performance, and monitoring and verification procedures for emission reduction performance of underlying projects.
- **Project implementation risk:** This risk relates to underlying green investment activities. Underlying projects located in the host country must be successfully executed—typical investment and financing risks may arise, including technical and commercial risks that may impede delivery of greening results stipulated in AAU purchase agreements.

11.3 In theory, any AAU trading scheme (or GIS scheme) will carry these combined risks and the magnitude of each risk category will vary, depending on the host country's general creditworthiness and institutional stability, the GIS scheme design and the type of underlying projects. In practice, some risks related to the AAU trading scheme could be borne or mitigated by parties to the AAU purchase agreement through negotiations under specific demand and supply conditions. Most risks can be mitigated through design of AAU purchase agreements and the GIS. However contracted parties or other institutions involved in the underlying projects may be unable to assume certain risks or able to absorb them only at a cost that may render the transaction uneconomic. For such cases, third-party risk mitigation (or credit enhancement) instruments could ensure the feasibility of the AAU trading scheme.

11.2. AAU MATERIALIZATION RISK

11.4 This risk is considered manageable in Latvia. The Government of Latvia is likely to be among the first participants in AAU trading and the country is on track to meet eligibility criteria. Government commitment to undertake this challenging task has been clearly demonstrated by the Cabinet of Ministers approval of “*The Concept on Latvia’s Participation in International Emissions Trading*” in April 2006. Potential AAU buyers have begun to consider potential transactions with the Government under the GIS framework.

11.5 Table 13 highlights major elements of AAU materialization risk, and potential risk mitigation when AAU transfer hinges on successful greening implementation.

Table 13: AAU Materialization Risk—Key Risk Elements and Risk Mitigation

Risk	Risk mitigation measure
<i>Risks to AAU buyers</i>	
Seller is in eligible for IET under Kyoto Protocol	Contract design. Take or pay contract
AAU price exceeds affordability	Contract design. Market intelligence
Failure to pay indemnity under AAU contract	Due diligence of the seller’s financial and fiscal capacity to pay. Third party risk mitigation
Dispute with seller over payment trigger	Contract design. Workable dispute resolution mechanism
Seller fails to deliver greening results	Workable design of feasible GIS and supervision
<i>Risks to AAU seller (Latvia)</i>	
Buyer is ineligible for IET under Kyoto Protocol ⁸⁰	Due diligence on Government readiness, Third party risk mitigation
AAU price renders transaction uneconomic	Contract design. Market intelligence
Fail to deliver greening projects	Workable design of feasible GIS and supervision. Third party risk mitigation
Buyers fail to make timely payments under AAU contract	Contract design. Default remedy and hedging arrangement

11.3. GIS IMPLEMENTATION RISK

11.6 It is assumed that AAU trading will be contingent upon the host countries’ ability to implement green investment activities, against which buyers will pay the monetized value of AAUs. The entire GIS architecture will rest on Latvia’s ability to establish a feasible and reliable GIS arrangement and build up an adequate project pipeline. Risks related to GIS implementation rest entirely on the seller’s institutional and regulatory capacity. The GIS implementing agency in whatever legal form—public or private, trust, agency, company—must comply with several fundamental principles to maintain its operational integrity and credibility because AAUs that support well-designed GIS and robust greening activities will bring higher prices.

11.7 The GIS implementation risk has three main components: (a) the governance and regulatory structure of GIS management agency; (b) financial management of AAU revenue; and (c) monitoring and verification of greening activities.

11.8 **Governance and regulation of GIS management agency:** Governance is the most critical element of the GIS arrangement. Selection of eligible projects for greening activities,

⁸⁰ N.B. Also the buyer must be eligible to receive AAUs under KP, this is not a risk to Latvia as such, but must be addressed in the AAU purchase agreement so that non-delivery in such instances is not a default.

determining the amount of AAU revenue allocation, and other functional mandates for the GIS management agency will need to be clearly defined by the statute, legislation, regulation, or operational guidelines/manuals according to the best international practice described in this report. The operational modalities of the GIS management agency and the detailed administrative procedures of GIS operations will provide the framework for project sponsors in undertaking the greening activities. Each project sponsor must take into account the regulatory, economic, and financial parameters under the GIS framework to determine project feasibility, and Latvia must maintain these parameters during project implementation to provide project sponsors with incentives to undertake the greening activities.

11.9 Financial management of AAU revenue: The GIS management agency is also expected to manage revenue from AAU sales and ensure disbursement of the allocated funds to individual greening activities. The feasibility of greening activities will hinge on the uninterrupted extra cash flow from the GIS agency for project financing. Therefore the GIS management agency must have reliable financial management, transparent fund disbursement, accounting, administrative and audit procedures, free from potential political interference. Cash-flow interruptions will impede on-going implementation of greening activities and could imperil the host country's future payments from AAU buyers.

11.10 Monitoring and verification of greening results: Reliable, objective monitoring and verification of greening activities and their expected greening benefits are essential to both buyers and sellers. The AAU buyers must justify the purchase of AAUs backed by underlying greening activities and sellers must continue to demonstrate results from the on-going greening activities. A monitoring and verification body independent of the GIS management agency would be advisable to avoid a potential conflict of interest. Monitoring and verification arrangements will also affect disbursement of AAU funds to the underlying greening projects because verified greening benefits may constitute performance indicators for releasing the AAU fund from the GIS agency to the project sponsors.

11.4. PROJECT IMPLEMENTATION RISK

11.11 Apart from risks directly linked to the GIS arrangement, two types of more generic risks exist with respect to project implementation and financing of greening activities—sovereign/political risk and commercial risk. These risks differ in magnitude depending on the host country, how the underlying greening activity will be undertaken and financed, and who will be a project sponsor.

11.12 Sovereign/Political risk: If the project sponsor is foreign, the perceived risk in implementing greening activities in a host country with low creditworthiness tends to relate to currency transfer, confiscation and expropriation, civil disturbances, among others. In less creditworthy countries, the host government's general institutional integrity affects the credibility of the entire GIS arrangement. However, most greening investment under the GIS will be undertaken by local project sponsors for whom the sovereign and political risks are less critical in their investment decision than for foreign project sponsors.

11.13 Commercial risk: This encompasses a wide range of risks encountered by project sponsors in developing, undertaking, and implementing projects. Typically, risks include market, financial, construction, technical, operational, legal and compliance. In particular, technical, operational, and financial risks are critical for greening investments under the GIS. Even public project sponsors face commercial risks.

11.14 First, each greening investment activity must be supported by a proven set of technologies for GHG emissions reduction or other environmental benefits to qualify as an eligible greening activity under the GIS regulations. Reduction of GHG emissions and other environmental benefits are also monitored and verified according to established technical methodologies. Second, in a greening investment with stringent performance indicators and payment linked to results, GIS revenue will depend largely on the project sponsor's technical and operational capacity to continue to engage in the greening activities and produce expected benefits. If project sponsors fail to implement greening activities the AAU contract may be suspended or cancelled and the host country will lose revenues. Third, the project's feasibility may rely on the extra cash inflow from AAU revenue. Commercial lenders may need to secure the extra revenue flow as collateral in providing a credit for greening investment. Inadequate technical and operational capacity will undermine the project's ability to generate revenue and possibly the financial and economic feasibility of the greening activity itself. In Latvia, local banks commonly lend to small- and medium-size companies and appear to be comfortable accepting project sponsors' implementation risk but they are unfamiliar with the GIS payment risk.

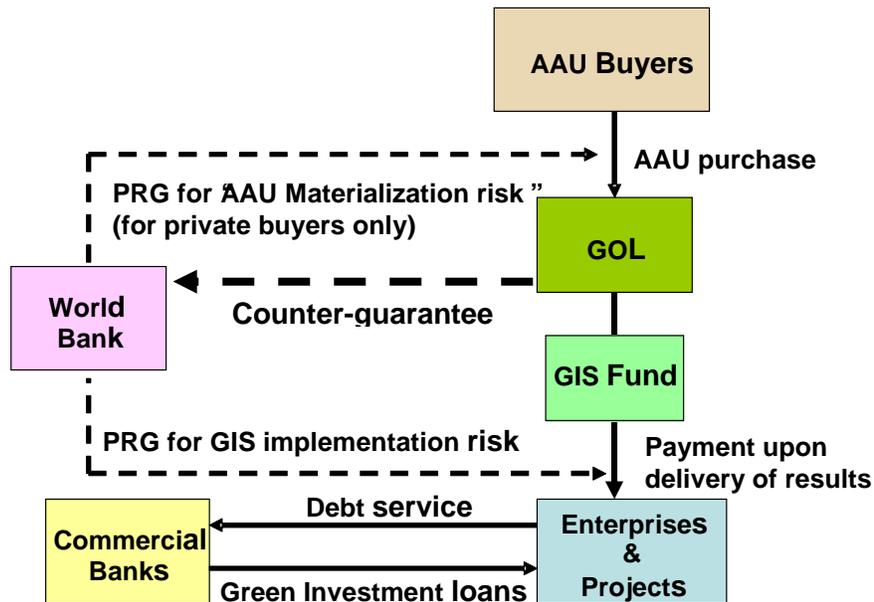
11.15 Financial products of the GIS management agency should include incentives to mitigate risks of project sponsor's non-delivery of environmental results (greening) including non-completion or delayed completion, or failure to operate project properly. Using GIS payments as performance-based grants would reduce greening non-delivery risks on a project- and a GIS-scheme level. If a project does not deliver, the grant could be reallocated to another project in the pipeline.

11.5. THIRD PARTY RISK MITIGATION FOR THE AAU TRADING

11.16 As the carbon finance market grows, risk mitigation instruments will be developed for the GIS and AAU trading scheme in the commercial market. Given the unconventional nature of the GIS and AAU trading scheme risks and the lack of track record for both sellers and buyers, multilateral financial institutions could play a catalytic role by providing risk mitigation instruments for developing and pilot-testing a GIS and AAU trading scheme. Potential demand for the third-party risk mitigation instruments seems to be limited for Latvia considering the market's generally favorable perceptions of its creditworthiness and institutional integrity.

11.17 Generically two risk mitigation instruments are possible—one for AAU materialization risk and the other for GIS implementation risk. Actual demand for these instruments depends on AAU buyers' risk perception at contract negotiation and the local banking market's receptivity for financing greening activities. Figure 18 illustrates potential risk mitigation schemes for GIS. The World Bank's partial risk guarantee ("PRG") is shown as an example of a third-party risk mitigation instrument that can cover financial, contractual, and regulatory obligations of the host government and its agencies, with a design flexible enough to fit specific market requirements. Similar instruments will be available from other international financial institutions and, possibly, from the commercial market.

Figure 18: Potential Third-Party Mitigation Schemes for a GIS



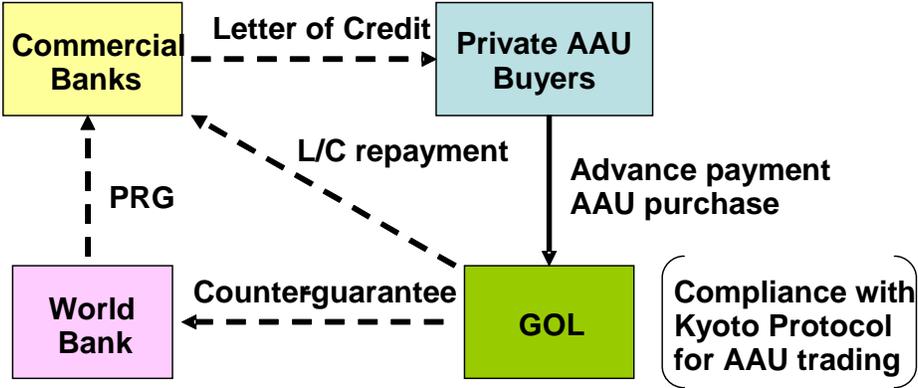
Box 14: World Bank guarantee instrument

Partial Risk Guarantees (PRGs) cover private lenders against the risk that a public entity fails to perform its obligations with respect to a private project. PRGs ensure payment in the case of default resulting from the non-performance of contractual obligations undertaken by governments or their agencies in private sector projects. PRGs have been widely used for infrastructure projects and can be applied in other sectors where the host government’s undertakings play a key role in securing the financing package of the projects.

11.18 PRG for GIS implementation risk: The local banking market in Latvia is receptive to greening activities and willing to lend to private sector sponsors, municipalities, and municipal enterprises. However, if their decision to lend is based on the value of expected AAU revenue flow and it is a significant source of debt service payment, third-party enhancement may be needed to secure the uninterrupted flow of AAU revenue. PRG can be structured to backstop the commercial bank’s letter of credit, which intermediates the continued cash flow from the GIS agency to the project sponsor. If the scheduled AAU revenue flow through the GIS agency is interrupted due to non-performance or irregularities at the GIS agency, the Letter of Credit will be drawn for the benefit of project sponsors. There may be alternative structures to cover the GIS implementation risk, these should be adjusted to specific market demand and conditions.

11.19 PRG for AAU materialization risk: A private entity is the only possible beneficiary of a World Bank PRG. Therefore PRG cannot guarantee materialization of AAUs to sovereign buyers. If a buyer is private the PRG can be combined with the letter of credit scheme from commercial banks to manifest the payment triggering mechanism. Figure 19 shows a letter of credit scheme applied to AAU materialization risk, where the commercial bank’s letter of credit will be drawn in case the host government fails to become eligible for AAU trading. Commercial banks will be backstopped by the World Bank’s PRG if the host government fails to repay the amount drawn under the letter of credit .

Figure 19: Possible Third Party Mitigation Scheme for AAU materialization risk (with advance payment on AAU purchase)



11.6. PRELIMINARY RISK ASSESSMENT IN THE LATVIAN CONTEXT

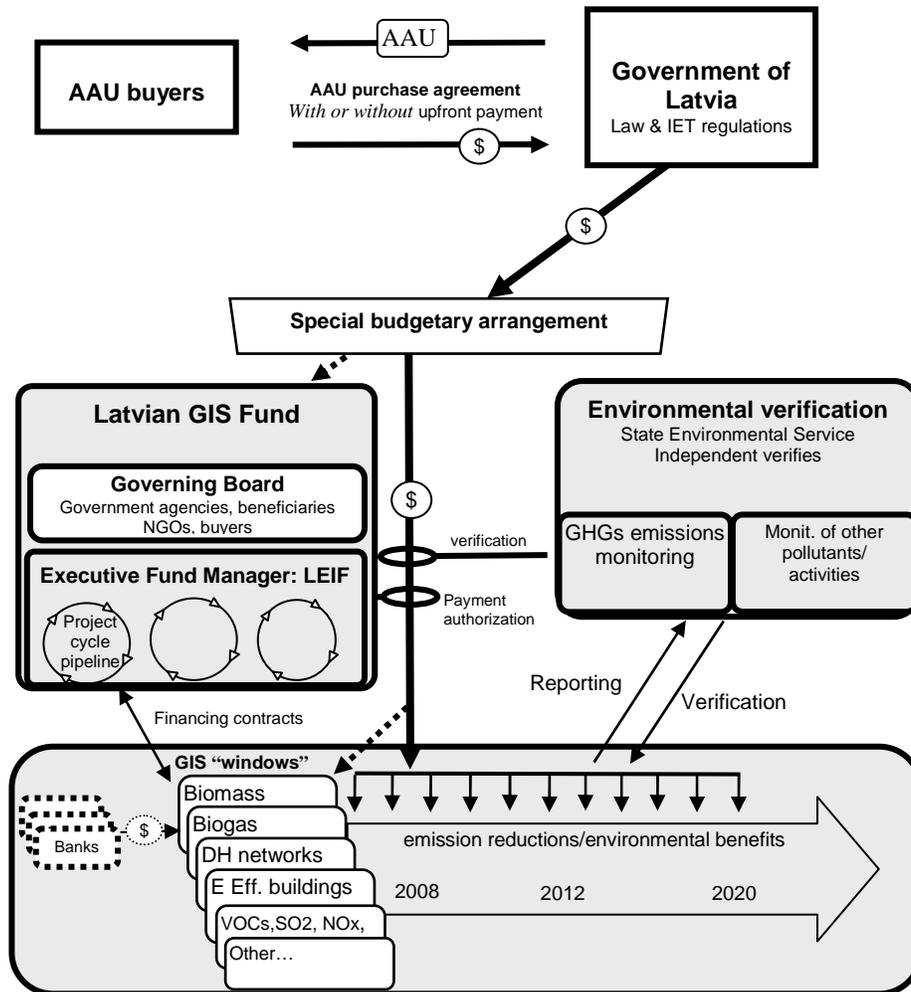
11.20 A preliminary assessment of the technical and operational capacity of potential local project sponsors and the depth and receptivity of local commercial banking market in providing credits to potential project sponsors, including small and medium-size private sector companies, municipalities and municipal enterprises has been conducted. It suggests that the proposed GIS and AAU trading schemes in Latvia do not seem to pose major challenges in managing the risks in terms of AAU materialization, GIS implementation and project implementation. In particular, project implementation capacity for greening activities is generally considered adequate in the local market. Third party risk mitigation (including letter of credit or promissory note) may possibly be requested by private AAU buyers to cover the risks associated with advance payment to Latvia to support the initial construction funding of the greening activities, or by project sponsors and commercial lenders to cover the GIS implementation risk when the financial feasibility of the underlying greening project heavily depends on the cash flow from GIS management agency.

12. INDICATIVE DESIGNS AND IMPLEMENTATION ARRANGEMENTS FOR LATVIAN GIS

- 12.1 Latvia's Green Investment Scheme implementation may have the following steps.
- ***Component 1: Establish legal framework and the GIS Fund management*** (on the basis of the 'Latvian Environmental Investment Fund'—LEIF). Under this component, the LEIF (and possibly other cooperating private and public agencies) would establish an operationally independent, transparent, and efficient governing and management mechanism for the GIS.
 - ***Component 2: Establish mechanism to monitor and verify GIS environmental results*** (on the basis of the State Environmental Service and private accredited verification companies). Under this component, a credible national system for monitoring and verification of environmental outcomes of the GIS will be established. Baseline emission factor for grid electricity can also be calculated.
 - ***Component 3: Develop project and program pipelines*** (technical assistance for project identification and preparation, including training for eligible beneficiaries and their financing agents—commercial banks, treasury unit responsible for financing municipalities, etc.).
 - ***Component 4: Public information, marketing.***
- 12.2 Conceptually the project cycle under the GIS may be as follows:
- (a) The eligible project owner would apply for financing through a nationally established mechanism, e.g., managed by the LEIF.
 - (b) The LEIF would appraise project proposals using procedures and criteria that would be described in the Operational Manual.
 - (c) Following appraisal by the LEIF Board and subsequent endorsement by the Supervisory Board, the LEIF would conclude a financing contract with selected project owners. The contract would include inter alia project scope, implementation schedule, pollutants covered, payments, payment schedule and conditions, and protocol for monitoring and verification of environmental outcomes.
 - (d) After implementing projects and commencing operations, a project owner would report annually on their emission reductions according to methodologies developed as part of the GIS design and embedded in a contract with a GIS management agency.
 - (e) Upon verification of reported environmental effects by competent entity (SES or private) the project owner (or contractor, or crediting commercial bank) would obtain authorization to draw money directly from the special account (managed by the Ministry of Finance).
 - (f) This procedure would continue in annual cycles throughout the period agreed with the buyers. Beneficiary enterprises must be able to finance the upfront capital investments internally and/or through borrowing.

12.3 Figure 20 below shows a potential concept for project structure and financial flows.

Figure 20: GIS structure and financial flows



ANNEX 1: RESPONSIBILITIES FOR THE EU EMISSIONS TRADING SCHEME

<i>Responsibility</i>	<i>Agency/institution</i>
Development of National Allocation plan and Estimation of GHG emissions	Ministry of the Environment
Reporting to UNFCCC(*)	Ministry of the Environment
Administration of the New Entrant Reserve	Ministry of the Environment
Reporting to European Commission on the application of the EU ETS directive	Latvian Environmental, Geological and Meteorological Agency
Issuing of GHG permits and dealing with proposed permit changes	Regional Environmental Boards of the State Environmental Service
Dealing with appeals by operators against permit conditions and decision to approve GHG emission reports	Environmental State Bureau
Establishment and maintenance of a national GHG registry	Latvian Environmental, Geological and Meteorological Agency
Development of Annual Inventory(*)	Latvian Environmental, Geological and Meteorological Agency
Developing accreditation requirements and accredits verification bodies	Latvian National Accreditation Bureau
Publishing a list of Accredited verifiers on website	Latvian National Accreditation Bureau
Verification of GHG emissions	Accredited verifiers
Approving of the GHG emission reports	Regional Environmental Boards of the State Environmental Service

(*) These activities are not directly relevant in the context of the EU ETS.

ANNEX 2: AAU MARKETING AND TRADING STRATEGY

1. The Ministry of the Environment of Latvia estimates that about 40 million AAUs could be put for sale during the commitment period of the Kyoto Protocol. Latvia is going to be among the smaller sellers in the market. With less than 1 percent market share, the country will be a price taker and will have limited opportunity to influence market rules. However, as one of the first actors in the market, Latvia's influence could be much larger. The Ministry of the Environment is aware about this background for the country's AAU trade position. It will be beneficial for Latvia to carefully monitor market trends shaped by the big sellers (mainly Russia and Ukraine) and use the country's comparative strengths to adapt quickly to anticipated conditions ahead of competitors.
2. The comparative *strengths* of Latvia include: (i) low risk of non-delivery of AAUs (robust estimates of surplus, progress in compliance with the Kyoto eligibility requirements, effective implementation of EU climate policy, including the EU ETS); (ii) low reputational risk (strong political commitment to the Green Investment Scheme approach in AAU trade, commitment to transparency and accountability, country international credibility); and (iii) flexibility and adaptability to buyers' expectations (relatively small size of the country, sophisticated and effective institutions of public and private sector).
3. Latvia's main *weaknesses* include: (i) relatively small size of tradable surplus; and (ii) limited opportunities for GHG emissions reduction projects.
4. Building on its strengths, Latvia may choose to anchor its trading strategy on *quick and reliable provision of the top quality AAUs with low risk and transaction costs*. Given its progress in meeting the IET eligibility criteria and a commitment to establish a credible GIS, Latvia has a potential to keep an image of a seller with very low delivery and reputational risks. Considering these strengths and weaknesses, Latvia can harness the following opportunities:
 - Take advantage (but also risk) of an early entry into the market with the pilot transaction. As one of the first sellers, Latvia can influence terms of AAU trade by proportionally more than would be implied by its market share. Entry of the largest buyers, especially Russia and Ukraine, may affect supply and lower market prices. The pilot transaction should be small to test the practicality of the GIS and buyers' responses for subsequent larger transactions, but large enough to attract attention of key buyers. The volume of 5-10 million AAUs for the first offering could meet these conditions.
 - Having built reputation with the pilot transaction and having established a credible GIS – keep the remaining AAUs on hold and observe market trends. Consider selling the next tranche, when private buyers more widely participate in the AAU market, when demand hikes, and before other big AAU sellers, especially Russia, are ready and eligible to trade.

- Maintain unquestionable legal eligibility to trade and a credible monitoring and reporting of the GIS environmental benefits. Have GIS regularly audited for financial scrutiny and overall performance, and supervised by the wide range of stakeholders. Maintain high standards of GIS management.
- Engage into dialogues with other new EU Member States (EU10) on a common strategy of using AAU surplus within the European Community.

ANNEX 3: EXISTING INTERNATIONAL LEGAL FRAMEWORK FOR INTERNATIONAL EMISSIONS TRADING

Public International Law

1. The first Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (COP/MOP) adopted in November 2005 a *Decision on the modalities, rules and guidelines for emissions trading* (11/CMP.1) as a part of the Marrakesh Accords.⁸¹ The rules outline, *inter alia*, the detailed eligibility criteria for emissions trading (discussed in Chapter 5) and impose the requirement that countries must maintain a commitment period reserve. However, they do not contain any requirements relating to the use of AAU revenues or creation of a GIS. These instruments are binding on Latvia, as it is a Party to the Kyoto Protocol.

2. Regarding liability, Paragraph 5 of the emissions trading rules provides that “transfers and acquisitions between national registries shall be made under the responsibility of the Parties concerned in accordance with the *Decision on Modalities for accounting assigned amounts*” (13/CMP.1). Accordingly, a transfer of AAUs is initiated by the seller’s NR (initiating registry) and it is completed when the AAUs are removed from the transferring account and recorded in the acquiring account.⁸²

3. Before the transfer of AAUs can be complemented, the ITL performs an automatic check to make sure, *inter alia*, that both parties involved in the transaction fulfill the eligibility criteria and that the transferring Party complies with its commitment period reserve.⁸³ In case the ITL detects a discrepancy with such requirements, it notifies the seller’s registry (i.e., initiating registry), which must terminate the transaction and notify both the ITL and the acquiring registry of the termination.⁸⁴ In case the seller’s registry fails to terminate the transaction, the transferred AAUs are *not valid* to be used for compliance with the Kyoto Protocol until the problem has been corrected and any questions regarding the transaction have been resolved.⁸⁵

4. The ITL will also send the discrepancy record to the UNFCCC Secretariat for consideration in the context of the review of the country’s implementation of the Kyoto Protocol under Article 8.⁸⁶ [The expert review teams operating under Article 8 can in their reports identify

⁸¹ The COP/MOP-1 also adopted some other decisions that are relevant to emissions trading, including the *Decision on Principles, Nature and Scope of the Mechanisms* (2/CMP.1) (which outlines the general eligibility criteria for participating in the Kyoto Mechanisms) and *Decision on Modalities for Accounting Assigned Amounts under Article 7* (13/CMP.1) (which contains provisions, *inter alia*, on transfer between national registries and the surrender of credits at the end of the first commitment period).

⁸² Paragraph 40 of the *Decision on Modalities for accounting assigned amounts*.

⁸³ Paragraph 42 of the *Decision on Modalities for accounting assigned amounts*.

⁸⁴ Paragraph 43 of the *Decision on Modalities for accounting assigned amounts*.

⁸⁵ Paragraph 43 of the *Decision on Modalities for accounting assigned amounts*.

⁸⁶ Paragraph 43 of the *Decision on Modalities for accounting assigned amounts*.

questions relating to implementation that will be forwarded to the Compliance Committee by the UNFCCC Secretariat.^{87]}

5. The emissions trading rules also address the question as to what happens if a party's commitment period reserve is below the required amount [which amount can be updated during the commitment period]. In such a situation, the UNFCCC Secretariat will notify the country in question. The country must then bring its holdings of AAUs, CERs, ERUs and RMUs to the required level within 30 days of the notification.⁸⁸

6. According to the *Decision on procedures and mechanisms related to compliance under the Kyoto Protocol (27/CMP.1)*, the Enforcement Branch of the Compliance Committee can suspend a Party's eligibility to participate in emissions trading, if it finds that the country does not meet one or more of the eligibility criteria.⁸⁹ Eligibility to participate in emissions trading can also be suspended, if the Enforcement Branch finds that a country's emissions exceed its Kyoto target, i.e., the Assigned Amount.⁹⁰ However, this can only happen when a country's compliance is being assessed after the first commitment period, also taking into account its transfers and acquisition of AAUs, CERs, ERUs and RMUs.⁹¹

7. If a country loses its eligibility to participate in emissions trading, it may submit to the Compliance Committee a request to reinstate its eligibility. The decision is made by the Enforcement Branch, for instance, on the basis of information received from the expert review teams or the compliance action plan submitted by the country to demonstrate, how it will meet its emissions target during the subsequent commitment period.⁹²

European law

8. European law is an autonomous legal system that is distinct from both the member states' national legal systems and international law. It consists of primary legislation (i.e., treaties that include the Treaty on European Union,⁹³ the Treaty Establishing the European Community⁹⁴ and the Accession Treaties⁹⁵) and secondary legislation (regulations, directives, decisions, recommendations and opinions). Decisions by the European Court of Justice and the Court of First Instance also play a significant role. The fundamental concepts of European law include the doctrines of direct effect and supremacy, which mean that Community laws can have an immediate effect in national legal systems.

⁸⁷ Paragraph 1 of the Section VI Submissions of the *Decision on Procedures and mechanisms relating to compliance under the Kyoto Protocol*.

⁸⁸ Paragraph 9 of the *Decision on Rules, modalities and guidelines for emissions trading under Article 17 of the Kyoto Protocol*.

⁸⁹ Paragraphs 4 of Section XV "Consequences Applied by the Enforcement Branch" of the *Decision on Procedures and mechanisms relating to compliance under the Kyoto Protocol*.

⁹⁰ Paragraph 5 of Section XV "Consequences Applied by the Enforcement Branch" of the *Decision on Procedures and mechanisms relating to compliance under the Kyoto Protocol*.

⁹¹ See the *Decision on the modalities for accounting assigned amounts*, including Sections D and E.

⁹² Paragraphs 2 and 3 of Section X "Expedited Procedures for the Enforcement Branch" of the *Decision on Procedures and mechanisms relating to compliance under the Kyoto Protocol*.

⁹³ *Official Journal C 325 of 24 December 2002*.

⁹⁴ *Official Journal C 325 of 24 December 2002*.

⁹⁵ There are a number of accession treaties concluded between 1973 and 2005 concerning *Accession of the Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and Slovakia*, see *Official Journal L 236 of 23 September 2003*.

9. The Latvian membership in the European Union means that it is also bound by the body of European law. When designing a GIS for Latvia, *at least* the following instruments of European law need to be taken into account:

- The European Union Greenhouse Gas Emissions Trading Scheme (EU ETS), regulated by Directive 2003/87/EC together with a body of Commission's decisions and guidelines;
- Directive 2004/101/EC, commonly known as the "Linking Directive," which opens the EU ETS to the Kyoto Protocol's project-based mechanisms (JI and CDM);
- Articles 87 to 89 of the Treaty establishing the European Community concerning state aid;
- Secondary legislation on state aid, including the Community Guidelines on State Aid for Environmental Protection (OJ 2001/C 37/03), applicable until 31 December 2007 and currently under review and the Regional State Aid Guidelines (OJ 2006/C 54/08);
- Legal acts that imply obligations to undertake various climate mitigation measures, including:
 - Directive 2001/77/EC on the promotion of electricity from renewable energy sources (Reduction potential from EU15 by 2010: 100-125 MtCO₂eq);⁹⁶
 - Directive 2004/8/EC on the promotion of on the promotion of cogeneration based on a useful heat demand in the internal energy market (Reduction potential from EU15 by 2010: 65 MtCO₂eq);
 - Directive 2002/91/EC on the energy performance of buildings (Reduction potential from EU15 by 2010: 35-45 MtCO₂eq);
 - Directive 2003/30/EC on the promotion of the use of bio-fuels or other renewable fuels for transport (Reduction potential from EU15 by 2010: 35-40 MtCO₂eq);
 - Directive 99/31/EC on the landfill of waste (Reduction potential from EU15 by 2010: 41 MtCO₂eq);
 - Voluntary agreement with the European Automobile Manufacturers' Association (ACEA)⁹⁷ (Reduction potential from EU15 by 2010: 75-80 MtCO₂eq); and
 - Energy labeling directives, including Directive 92/75/EEC on the indication by labeling and standard product information of the consumption of energy and other resources by household appliances⁹⁸ (Reduction potential from EU15 by 2010: 20 MtCO₂eq).

⁹⁶ Source: Jurgen Salay: DG Environment, Climate, Ozone & Energy Unit.

⁹⁷ See Commission Recommendation on the reduction of CO₂ emissions from passenger cars 1999/125/EC addressed to the ACEA.

⁹⁸ A number of directives have also been adopted to implement this directive regarding energy labelling, *inter alia*, of electric ovens, air conditioners, office equipment, dishwashers etc. [For a complete list, see <http://europa.eu/scadplus/leg/en/lvb/l32004.htm>.]

ANNEX 4: EXCERPTS FROM THE LAW ON BUDGET AND FINANCIAL MANAGEMENT

Section 27. Opening and Closing of Accounts

- (1) Accounts of bodies financed from the State budget for the receipt of State budget funds and for the making of expenditures to be made from the State budget funds may only be opened with the Treasury.
- (2) On 31 December each year the Treasury shall close all accounts opened in the current financial year. Accounts of funds of the State basic budget shall be opened for bodies financed from the State budget in the next financial year in accordance with the assignments allocated by financing plans. The surplus of funds remaining at the end of the year in the basic budget accounts of the bodies financed from the State budget, which has arisen from their revenue from the provision of services charged for and other own revenue, foreign financial assistance funds and European Union policy instruments, if the surplus of such revenue does not exceed the actual amount of funds received within the year, shall remain at the disposal of the bodies financed from the budget and may be utilised in the next year. Accounts of special budget funds shall be opened in the next financial year, entering in them all surpluses from the previous year.
- (3) The surplus of funds remaining at the end of the year in the accounts of State and local government agencies, which has arisen from all forms revenue of the State and local government agencies, except for State basic budget grants, if the surplus of such revenue does not exceed the actual amount of funds received within the year, shall remain at the disposal of the relevant State or local government agency and may be utilised in the next year.
- (4) Local governments and merchants in whom a State or local government capital share is invested may open accounts with the Treasury.

Article 8: Special Budgets

- (1) A special budget shall encompass appropriations for State or local government purposes in the following cases: 1) if the law provides for the covering of expenditures from sources of revenue earmarked for special purposes; (...)
- (2) A special budget account shall be opened in accordance with the law or with the permission of the Minister for Finance.
- (3) Transfers from a basic budget account to a special budget account shall only be permitted pursuant to an appropriation.

ANNEX 5: REVIEW OF GHG EMISSIONS REDUCTION POTENTIAL IN RELEVANT SECTORS

1. This Annex includes a review of GHG emissions reduction potential in these sectors. Priority sectors of greening have been tentatively identified in collaboration with the Latvian Ministry of the Environment and other stakeholders. This Annex also analyzes issues, opportunities and barriers related to implementation of different measures and summarizes implementation of the key government policies in order to provide background information for proposed greening programs in Chapter 8. The main documents used here are ‘“*Climate Change Mitigation Program 2005-2010*’ and ‘*Fourth National Communication of the Republic of Latvia to the UNFCCC*’.⁹⁹

Energy

2. The development of the energy sector is guided by the *Energy Law, Law on Excise Tax and Natural Resources Tax Law* and by various policy planning documents—the plan “*Energy Policy in the Power Sector*” (2001), “*State Energy Efficiency Strategy*” (2000), “*Strategy on Renewable Energy Sources 2006-1010*”, and “*Energy Development Strategy 2006-2016*”.

3. In 2004, the primary energy consumption amounted to 199.4 PJ.¹⁰⁰ A distinct feature of the Latvia’s energy sector is its relatively high dependence on imports of energy resources. Only one third of total energy consumption in 2004 was supplied from domestic sources. Oil products and electricity are imported from several countries and supply regions, whereas natural gas has only one supplier, Russia.

4. Natural gas (30 percent of total energy resources in 2003) is increasingly used in centralized heating supply systems. Although this is one of the most environmentally-friendly fuels, pricing of natural gas is unpredictable, especially given concerns over allegedly non-transparent pricing procedures between supplier ‘Gazprom’ and buyer ‘Latvijas Gaze’. There are a number of oil suppliers. However, price fluctuations in the international oil market are the main risks that need to be considered. The share of oil is 30 percent of total primary energy resources.

5. To minimize the risks of excessive import dependency, the Government’s ‘*Energy Development Strategy for 2006-2016*’ envisages an increase of local and renewable energy sources. These include biomass, straw and agricultural byproducts, biogas, bio-fuel, hydro, wind, solar, domestic oil reserves, solid waste, geothermal energy and peat.

6. To increase the share of renewable energy sources in the energy balance and reduce GHG emissions, the ‘*Climate Change Mitigation Program*’ proposes several measures: (i) promotion of

⁹⁹ 2004 data became available during the course of study. Due to time constraints, 2003 data is still partly used as the most recent data in some cases.

¹⁰⁰ Source: Central Statistical Bureau of Latvia, 2005, *Energy balance 2004*, Riga.

biomass and biogas use; (ii) support for energy generation in small hydropower plants; (iii) support for wind power production; (iv) promotion of solar energy use; and (v) support for bio-fuel production and promotion of bio-fuel use.

7. To increase efficient and rational use of energy sources, the following measures are and will be implemented:

- Support for the construction of combined heat and power generation plants and energy efficiency projects;
- Support for energy efficiency projects in thermal energy generation and distribution and transmission; and
- Support for projects improving energy performance in buildings.

Biomass

8. In 2003, the share of renewable energy sources—mainly wood—in the primary energy balance in Latvia was approximately 33 percent and the potential to increase the share is considerable. Since 1990, the consumption of local renewable energy resources in Latvia has increased from 44 PJ (in 1990) to 69 PJ (in 2004) and the largest contribution was made by wood.¹⁰¹ The use of fuel wood in Latvia in 2004 was about 57 PJ/a. Additional 20 PJ of wood is exported. Fuel wood use in the total energy resources balance is about 30 percent. In public heat plants and CHPs, the amount of wood fuel used was 24 percent of total fuel use in 2004 (see Table 14). The share of wood in decentralized sector for heating is about 40 percent.

Table 14: Primary fuel used in heat only boilers and in CHP in 2004.

Fuel	PJ	%
Natural gas	37.5	69.9%
Heavy fuel oil	2.7	5.0%
Diesel	0.0	0.1%
Wood fuel	13.0	24.2%
Peat	0.1	0.1%
Coal	0.3	0.5%
Other fossil fuels	0.1	0.2%
Total	53.7	100.0%

9. Total maximum biomass potential is considerable, up to 12,000-13,000 GWh/a (see Table 15). The main potential could come from forest residues, i.e., 1.7-2.7 million m³/a, best estimate being 2.5 million m³/a (5,600 GWh/a).¹⁰² In addition, there is a great potential to use straw and other energy crops (like willow) for power and heat generation.¹⁰³ Also increase of forest stand productivity and afforestation of currently unmanaged agricultural land offer additional sources of biomass. The strategy for unmanaged agricultural land will be elaborated in near future, and it is currently open whether unmanaged land would be, e.g., afforested or used for energy crops.

¹⁰¹ Ministry of the Environment (2006).

¹⁰² Biomass Association of Latvia; The Ministry of Agriculture, department of forestry.

¹⁰³ Currently, there is one boiler utilizing straw in Latvia. Total potential of straw in Latvia is estimated by Latvian experts to be 150,000 to 570,000 tons per year with energy potential up to 610 GWh/a (2.2 PJ).

Table 15: Total maximum potential of biomass¹⁰⁴

Biomass fuel (wood, agricultural biomass)	Amount/a	Potential PJ/a	Potential GWh/a
Agricultural (straw, grain, rape residues etc.) <i>mill. T</i>	0.6	5.2	1,400
Unused forest cutting residues. <i>mill. m³</i>	2.5	20.1	5,600
<i>Total (currently unused)</i>	<i>3.0-3.2</i>	<i>24 – 26</i>	<i>6,600-7,200</i>
Wood side products and residues which are currently exported, <i>mill. m³</i>	1.2	10.5	2,900
Biomass saved due to efficiency measures, <i>mill. m³</i>	0.7	6.1	1,700
Firewood saved due to efficiency improvements, <i>mill. m³</i>	0.5	3.3	900
<i>Potentially available</i>	<i>2.3-2.5</i>	<i>19-21</i>	<i>5,300-5,800</i>
Total	5.3-5.7	43-47	12,000-13,000

10. Based on Latvian expert opinion, maximum economic and technical potential to increase the use of biomass in the foreseeable future in energy sector (by 2012) is limited to about 500 GWh/a (1.8 PJ/a) year for centralized, localized and individual energy supply systems. Increased use could mainly replace natural gas (approximately 99 percent) and some heavy fuel oil (mazut) use (1 percent). The use of coal is very limited in Latvia. Effective GIS support could, however, speed up the utilization of biomass sources. In addition, more efficient use of firewood could save biomass, especially in household sector.

11. The main barriers for implementing biomass projects are lack of economic incentives and legislative support, as well as lack of experience utilizing the latest advanced technologies. Unbalanced taxation and pricing mechanisms in other EU countries, especially in Baltic Sea region have also an impact on biomass utilization in Latvia, leading to export of sizable amount of biomass to these countries. Therefore, for the promotion of the biomass fuel use, development of the technologies and lowering of the investment costs and relative price of biomass use is crucial.

12. Practically, all 300,000¹⁰⁵ single family houses are privately-owned houses with individual heating. Until now, mainly natural gas is used by those having access to it. Due to gas price growth, conversion to modern RES technologies can be accelerated. The most feasible solutions are automatic wood pellet boilers and also heat pumps. Currently there are 2,000 modern wood pellet boilers in scale of 10 - 500 kW in operation. 70 percent are used for heating of private houses and 30 percent for public and industrial buildings. Annually, approximately 400 such boilers are installed without support, but, based on, e.g., Austria's experience, 30 percent subsidy could give a growing long term "snow ball" effect and partly replace of natural gas and increase efficiency.

13. The current fuel choice is still mainly determined by availability of natural gas, even though the recent and expected price increases may affect the choice of fuel. The consumers, which have the access to the natural gas connection, are using gas due to the high level of comfort and relative low investments in combustion installations. Investments in biomass fired CHP are about 1,200–1,600 Euro/kWe, while investments in similar natural gas fired CHP are 800–1,000 Euro/kWe.

¹⁰⁴ Ministry of the Environment of Latvia.

¹⁰⁵ There are no statistics currently available. Based on different Latvian expert opinions, actual number of single family houses could vary between 180,000 and 300,000. Emission reductions potential could be somewhat overestimated based on 300,000 single family houses.

14. Feed-in tariff would provide support for biomass utilization. The issue is currently open, as new electricity feed-in tariff for small cogeneration plants (up to 4 MW_{el}) is discussed within the government. This feed-in tariff may provide sufficient support for small biomass based CHP plants, but will not support other forms of renewable energy.

Combined heat and power (CHP)

15. Cogeneration plants allow simultaneous and more efficient production of thermal energy and electricity. The amount of thermal energy produced by cogeneration is increasing every year (from 23 percent in 1990 to 48 percent in 2004). Currently, 36 cogeneration plants with the total installed capacity of 590 MW are in operation. Energy development guidelines, based on EU CHP Directive foresee that by 2016 the potential of CHP must be adopted in the major cities in Latvia with the total heat capacity of 300 MW_{th}. In other cities the potential, which has to be adopted is 100 MW_{th}. The potential of CHP in Riga city is about 50, Daugavpils 100, Liepaja 80, Ventspils 40 and Rezekne 30 MW_{th}. Additional potential for CHP can also be identified in local and individual heat supply systems.

Small hydropower, wind power and solar energy

16. The greening potential of small hydropower plants is limited. There are 149 such small hydropower plants in Latvia. Production could grow by 10–20 percent from current production level of 55 GWh/a, i.e., an addition up to about 10 GWh/a, by 2012. Total additional potential is estimated to be around 50 GWh/a. Technical potential is even higher, i.e., up to 150–300 GWh/a, but limited in practice due to environmental concerns.

17. The current wind power capacity is 27 MW, and the potential of wind energy is limited, according to Latvian experts. Production could increase to 300 GWh/a by 2012, with theoretical maximum potential being up to 1,250 GWh. Licenses are already granted for 225 MW of wind power, but no plants are currently constructed due to missing feed-in tariff for renewable electricity. New feed-in tariff may be in place by the end of this year.

18. Maximum greening potential of solar energy would be up 5 percent of the total energy production, but high costs would, most likely, limit the theoretical potential considerably. Even though solar radiation is rather low in Latvia, i.e., 1,100 kWh/m² annually, solar energy for heating is currently used on five sites. The possible period for use of solar energy is from the end of April until the beginning of September, when intensity is 120 kWh/m². Within this period (about 1,800 hours) it would be possible to use the solar energy by installation of collectors. Some additional potential could be identified also for combined systems of solar collectors operating together with photovoltaic (PV) cells. Research on a new type of solar collectors with high heat conductivity is carried out in Latvia.

19. Detailed statistical data is missing for geothermal energy. Main potential lies in 12,000 km² area in Southwestern part of the country. A heat pump will be installed for one municipality this year and for about 100 private houses with capacity of 20–40 kW.

Bio-fuels

20. Bio-fuels is mainly used in transport sector. Based on Directive 2003/30/EC, by 31 December 2010, 2 percent of the total consumption of petrol and diesel in the transport sector in Latvia has to be covered by bio-fuels. By 2020, the share of bio-fuels has to reach 5.75 percent.

To achieve these goals, it would be necessary to produce or import at least 750,000 tons of bio-fuels in 2010.

21. The Cabinet of Ministers has declared that agricultural raw materials produced in Latvia should be given the priority in the production of bio-fuel and the bio-fuels produced in Latvia should be promoted. The production and use of bio-fuel in Latvia up to 2010 is planned according to the “*Production and Use of Bio-fuel in Latvia (2003-2010) program*”. Measures to realize the priorities are stated in the Action plan for the implementation of the program, *the Law on Bio-fuel* and “*The Program of Agricultural Development for 2003*”.

22. Currently, three biodiesel production units are operating in Latvia - each with a capacity of 2,500 t fuel per year. In addition, there is one bioethanol plant with a capacity of 9,600 t/a. Several new bio-fuel projects are under development with the total projected capacity of about 200,000 t/year. In reality, however, not all the projects may be implemented. Bio-fuels will be mainly used in transport. The use of bio-fuels in energy production is also considered in Latvia.

Energy efficiency in energy generation and distribution

23. The average efficiency in energy production in Latvia is 68 percent. There is a clear potential to increase efficiency, as efficiency is typically 80-90 percent in modern plants. Twenty three energy efficiency projects have been implemented in Latvia during 2000-2003. These include 19 biomass, bio-fuel or biogas heat supply projects replacing fossil fuels, and thermal energy distribution system renovation projects. Additional energy efficiency improvement potential in boiler house modernization is estimated to be approximately 5 percent.

24. Significant fuel savings could be achieved by replacing ineffective burning of wet wood logs (efficiency under 60 percent) with effective burning of biomass (above 80 percent), especially in private households. In addition, the use of flue gas condensers could save up to 30 percent of heat energy in certain installations.

25. According to the statistical data, the average losses in district heat supply networks in Latvia are 17 percent, and in some systems even up to 20-30 percent. At the moment, only about 20 percent of pipelines have been modernized (of 1,700 km in total). Rehabilitation of district heating supply system and distribution network could, therefore, reduce losses down to 8-10 percent based on economically and technically viable energy efficiency improvement potential in distribution networks estimated by Latvian experts.

Energy efficiency in buildings

26. Energy efficiency improvements, especially in building sector, offer a relatively high greening potential. The main legislative act providing requirements related to energy consumption is currently *Latvian Building Code LBN 002-01* (accepted by Cabinet of Ministers in November 2001). It defines normative and maximal heat transfer values for the buildings. These standard values apply both for new and renovated buildings and they are similar to standard values of other European countries.

27. Latvia has ratified the European Energy Charter, which stresses that improvement in energy efficiency in all stages of the energy cycle. Two significant EU directives, also affecting the use of energy resources, are Directive 93/76/EEC to limit carbon dioxide emissions by improving energy efficiency (SAVE) and the Directive 2002/91/EC on the energy performance of buildings (EPBD).

28. “National Energy Efficiency Strategy” has been developed and approved in 2000 with the aim to determine a set of energy efficiency measures to reduce the primary energy consumption in Latvia by 25 percent per unit of GDP by 2010. “Energy development guidelines 2006-2016” set that in the period until 2016, the annual energy consumption in buildings should be reduced from 220-250 kWh/m² to 195 kWh/m².

29. In order to implement the requirements of the EU Directives, in 2004 the Ministry of Economics prepared the draft Concept “On Implementation of the Directives of the European Council to Improve Energy Performance of Buildings”. The Directive is not yet transferred to national legislation. A draft has been submitted to the Cabinet of Ministers in the end of 2005.

30. The EU Energy Performance of Buildings Directive has far-reaching implications for the owners, operators and developers of all buildings in EU and will play a vital role in delivering step-change in buildings-related energy efficiency. Practical implementation of the Directive is very demanding for Latvia, given general poor energy performance of buildings (see Table 16).

Table 16: Specific energy consumption for different building types in Latvia

Building type	Heating, kWh/m ² /year	Hot water, kWh/m ² /year	Electricity, kWh/m ² /year	Remarks
One family buildings	200-350	60-70	10-20	
Multi family buildings (built before 1945)	200-250	60-70	10-20	Heating consumption in buildings built before 1945 usually is higher because of high ceilings
Multi family buildings (built between 1945 and 1990)	100-200	60-70	10-20	
Multi family buildings (built after 1990)	70-100	60-70	10-20	Heating consumption is based on national building code LBN002-01 but it is not known if these requirements are fulfilled
Public buildings (owned by state and municipalities)	100-300		30-50	Hot water consumption depends on number of consumers and type of building
Commercial buildings and industrial buildings	100-300		30-100	Hot water consumption depends on number of consumers and type of building: Heating and cooling for ventilation and air conditioning is included

31. Key provisions of the Directive are: (i) minimum requirements for the energy performance of all new buildings—every member state is responsible for setting these requirements for its buildings stock and climate conditions; (ii) minimum requirements for the energy performance of large existing buildings (more than 1000 m²) subject to major renovation - every member state is responsible for setting these requirements for its buildings stock and climate conditions; (iii) energy certification of all buildings (with frequently visited buildings providing public services being required to prominently display the energy certificate); and (iv) regular mandatory inspection of boilers and air conditioning systems in buildings.

32. A unified system is currently being developed in Latvia for the determination of the energy consumption of buildings. This includes application of energy consumption standards to new and existing, renovated buildings. A building certification system is being developed, and national energy certification for buildings is anticipated to be implemented at the earliest in 2006.

33. Energy savings of 10-15 percent can easily be achieved, based on Latvian expert views and even higher figures, up to 30 percent of heat energy savings, have been presented in residential sector. Energy efficiency potential of public buildings is around 10 percent for electricity use and around 20 percent for heat. Energy efficiency potential of commercial buildings is approximately 10-20 percent of electricity use based on expert judgment.

34. ESCOs (Energy Savings Companies) face still some challenges, despite some successful examples. The ESCOs are more interested in Energy Delivery Contracting (EDC) than in Energy Performance Contracting (EPC). There are at least 41 EDC but only 2 EPC.¹⁰⁶ Some of the main barriers are the following:

- potential clients cannot accept idea that someone is making profit on their account, and lack of motivation to decrease energy bills in public buildings (usually saved amount is withdrawn from budget next year and not reinvested into other activities);
- lack of government support and lack of legislative background and attitude of some energy utilities;
- lack of credit history, access to capital, financing and credit;
- small average size of projects and data availability (lack of heat meters etc.);
- lack of general knowledge of ESCOs and lack of experience with new technologies; and
- administrative corruption possibilities.

35. The main general barriers implementing EE measures in buildings stock are the following:

- (a) **Legal barriers** — *Law on Apartment Ownership* provides that all owners of apartments in dwelling buildings are obliged to take part in management and maintenance of common part of building. Only general meeting of apartment owners can decide on takeover management rights and type of management form that will be used in building. In order to take legally binding decisions, more than half of apartment owners have to support particular decision. It is typically very difficult to reach an agreement.
- (b) **Financial barriers** — the second biggest barrier is lack of Government's financial support. The government-issued program for large scale housing will most likely provide support to renovate large scale housing with the total financing of LVL 7 million (9 million Euro). While well-established commercial bank loans are available, the mentality of the nation regarding loans prohibit in practice implementation of energy efficiency projects.¹⁰⁷ Upcoming EU Structural fund grants may also be available for limited number of projects. At the end of 2005, the Latvian government took the decision that approximately 43 million Euro from EU structural funds for 2007-2013 may be allocated to energy efficiency projects in housing sector coordinated by the Ministry of Regional Development and municipalities. This money could cover co-financing costs for approx. 570 buildings assuming that co-financing from EU is 75 percent and total refurbishment costs for building are €100,000.
- (c) **Barriers due to prevailing practices** — fear of borrowing is based on past experience from beginning of the 1990s when many people lost their money and have not financially recovered. Also a lack of willingness to change and lack of motivation contribute to this.

¹⁰⁶ City council of Tukums organized the tender for ESCO service supply for street lighting project in 2002. The winner signed the agreement to reduce electricity consumption of street lighting from 896 MWh/year to 266 MWh/year. The Winner has to operate the street lighting system for 15 years maintaining the same service level.

¹⁰⁷ Valmiera city council provides non-interest loans for dwelling buildings to improve energy efficiency. Max amount of loan is 7000 EUR and max length of loan is 3 years. This is financed from Privatisation funds of municipality.

Transport

36. **Sub-sector background:** GDP share of the transport sector has been increasing since 2000, and in 2004 reached 11.5 percent. The number of vehicles in Latvia is increasing rapidly – in the past ten years the number of vehicles on average increased by 4-6 percent annually. GHG emissions from transport sector are also increasing. In 2004, the share of transport sector was 27 percent of all CO₂eq emissions. Transport is also a source of N₂O emission, and generates also 59 percent of all NO_x.¹⁰⁸ It is also an important source of CO and particle emissions.

37. The main objectives and trends of the transport sector are defined by the following legislation and policy planning documents: *”National Program of Transport Development for 2000 – 2006”*, *Law on Excise Tax*, *”National Program for Bicycle Transport”*, and *”Program for Bicycle Transport Development in Riga”*, *”Riga Traffic Concept for 1999 – 2003”*, *”Riga Environmental Strategy for 2000 – 2010”*. The most important policy planning projects are *”Riga Development Plan for 2006 – 2018”*, *”Riga Historical Centre Preservation and Development Plan”* and *”Riga Public Transportation System Concept for 2005 – 2018”*, which is part of the *”Riga Traffic Concept for 2005 – 2018”*.

38. To develop environmentally-friendly transport system by reducing GHG emissions in transport sector, the following policy measures are planned in the *”Climate Change Mitigation Program 2005-2010”*: (i) optimization of the traffic flow in cities; (ii) facilitation of public transport use in Riga; and (iii) development of bicycle transport infrastructure.

39. While GHG emissions in transport sector are typically hard to control, other potential measures can also be identified in transport sector. The use of bio-fuels replacing gasoline and diesel is one of the most promising measures. The production and use of bio-fuels could possibly exceed the 2 percent consumption requirement (750,000 tons of bio-fuels in 2010) set by EU Directive 2003/30/EC.

Agriculture

40. **Sector background:** Although the share of agriculture in the GDP of Latvia is small (2.6 percent in 2002, 2.4 percent - 2003), 10.4 percent of total labor were employed in this sector. About one third of Latvia’s population lives in rural area.

41. In 1990–2003, the share of GHG emissions from agriculture in the total GHG emission balance decreased by 5 percent. In 2003, agriculture contributed to 15.4 percent of total GHG emissions in Latvia. Of this, 35.2 percent of emissions originated from livestock enteric fermentation processes, 13.3 percent emissions came from applying nitrogenous mineral fertilizers in agriculture, and 51.5 percent from agricultural soil, which remains the main N₂O emission source, contributing to 71 percent of total N₂O emissions in 2003.

42. The basis of agricultural policy and strategy is set by the *Law on Agricultural and Rural Development* (2004) and various policy planning documents, such as *”Agricultural Development in Latvia’s Rural Areas 2003 – 2006”*, *”Biological Agriculture Development Program 2003–2006”*, *”Action Program for Specially Sensitive Territories”*, *”Strategy of the Ministry of Agriculture 2007-2010”*, and others. Strategy focuses on five main policy directions, incl. (i) food safety and quality; (ii) animal health; (iii) promotion of development of rural entrepreneurship; (iv) promotion of development of human capital for rural activities; and (v) sustainable

¹⁰⁸ Latvia’s National Inventory Report, 2006.

management of natural resources. Nine budget programs are available to help to implement the above policies.

43. To promote the implementation of environmentally-sound agricultural methods that reduce direct GHG emissions, the following measures are proposed as part of the *Climate Change Mitigation Program*: (i) improving and construction of manure storage facilities; (ii) sustainable use of agricultural resources; and (iii) development of environmentally-friendly agriculture and promotion of Good Agriculture Practice.

44. One of the main cross-sectoral issues related to GIS will be availability of biomass for combustion, biogas production and/or bio-fuel production. In addition, issues like manure management will influence biogas potential. For example, strategy to manage currently abandoned agricultural lands will be elaborated in the near future affecting also greening potential.

Land-use, land-use change and forestry

45. **Sector background:** The long-term objectives and principles of the forestry development strategy are stated in the *Latvian Forest Policy*, approved in 1998. The task of the forest policy is to balance community interests with the benefits of economic development, by creating favorable conditions for economic development and preserving the ecological and social values of forests. The main principles of sustainable forest management are included in *Law on Forest*, as well in *Law on Regional Development* and *Law on Territory Planning*.

46. The regional policy of Latvia for the next ten years will be guided by the “*Strategy for Regional Policy*” (2004). In 2003, a number of research projects were carried out within the scope of the project “*Formulation of Strategic Goals for Forestry Sector and Human Resources Development in Strategic Planning*” as part of the “*National Program on Latvian Forests and Related Sectors*”.

47. Sustainable management of forest and forest land, increase of forest stand productivity and afforestation of unmanaged agricultural land has the greatest significance in the climate change mitigation context. These measures coincide with the goals defined in the *Forest Policy*. Experts believe that the implementation of these principles would provide for an increase of the share of forest land to 48-52 percent of the territory of Latvia within the next 20-25 years, correspondingly increasing CO₂ removals.

48. Investment in land afforestation is a long-term measure with a long pay back time, therefore financial support is necessary to trigger the implementation of afforestation projects. Currently, there are approximately 6 million Euro available for afforestation of agricultural lands to cover 50 percent of project costs enabling to afforest approximately 4,000 ha.

Waste Management

49. **Sector background:** In Latvia most of the municipal waste and other collected waste is deposited in dumpsites without processing (approximately 40 percent of collected waste is deposited in Getlini landfill, Riga district). GHG emissions in the waste sector have increased by 37 percent in 2002, compared to 1990, due to the increase in municipal waste amount. The waste

sector accounted for 9 percent of the total GHG emissions in 2003. Compared to 2002, CH₄ emissions have decreased by 18 percent in 2003, possibly due to the increased recycling.¹⁰⁹

50. *Law on Waste Management* (2000) and "*National Plan for Waste Management, 2006-2012*" define the waste management policy in Latvia, setting the hierarchy of waste management priorities: prevention of waste generation, reduction of the volume and harmfulness of waste, recycling for material and energy recovery, safe and environmentally friendly disposal, closing and restoring existing dumpsites and establishing new municipal waste landfills.

51. To establish up-to-date municipal waste management system, ensuring collection of biogas in municipal waste landfills, the following priority measures are/will be implemented as part of the "*Climate Change Mitigation Program 2005-2010*":

- Processing of biologically degradable waste;
- Collection of biogas from municipal waste landfills; and
- Restoration of small municipal dumpsites not meeting environmental requirements.

52. Small landfills will be replaced by about 10-12 regional landfill to be covered by EU Landfill Directive requiring methane capture by 2009. According to Latvian authorities, 324 small landfills need to be restored. Methane capture potential, however, in these landfills (not covered by EU landfill directive) is limited based on Latvian expert opinion due to, e.g., high costs. However, this potential could be worth studying when GIS is further elaborated.

Biogas

53. **Sub-sector background:** Biogas can be produced in several sectors, including waste management, wastewater treatment, agriculture (manure, animal waste), public catering and food processing industries, and from energy crops. Potential for biogas recovery and utilization from small, closed municipal landfills is rather limited, based on Latvian expert opinion, and new landfills will be covered by EU Landfill Directive (with methane capture).

54. The maximum potential of biogas is estimated to be 370 million m³/a, i.e., 820 GWh of energy could be obtained annually. Practical potential is estimated to 115 million m³/a with potential additional electric production of 256 GWh/a. The main realistic sources for biogas, based on Latvian expert judgment, would be: (i) manure - 94 mill. m³/a; (ii) food industry - 2 mill. m³/a; (iii) biomass (maize, grass etc.) - 2 mill. m³/a; (iv) animals waste - 5 mill. m³/a; (v) sludge - 7 mill. m³/a; and (vi) other biodegradable waste - 6 mill. m³/a.

55. Maximum potential, taking also into account biogas from energy crops, could approximately be up to ten times larger. In addition, there could be considerable positive spin off effects for different sectors. Currently, there are two biogas plants operational in Latvia with the total installed capacity of 7.5 MW even though biogas use in gas engines is a proven technology. Third plant is planned to be implemented in fall 2006. The main barriers for implementing biogas projects are lack of policy and support.

Industry

56. **Sector background:** Industry is the leading sector in the growth of the state economy. Over 2001–2003, output volumes in manufacturing industry annually increased by 9.4 percent on average, considerably exceeding the average growth rates of the national economy. Wood

¹⁰⁹ Fourth National Communication of the Republic of Latvia to the UNFCCC (2006).

processing, machinery and hardware manufacturing made the largest contribution to the industry growth.

57. In 2004, output volumes of manufacturing industry increased slightly slower – by 7.9 percent, more rapid growth was observed in chemical industry and building material industry. Food industry is the largest sub-sector of Latvia's industry. The food production output constitutes more than ¼ of industrial value added. The second largest sub-sector is wood processing (approximately one fifth of industrial value added). Development trends of the industry sector are set in the “*Strategy for the Development of Industry 2004 – 2013*”, “*National Concept on Innovations*”, and “*National Program of Innovations 2003-2006*”. To reduce industrial pollution, the Government's of Latvia policy is focused on promoting the implementation of the best available techniques, environmentally-friendly technologies, and cleaner production.

58. The share of GHG emissions generated by industry (manufacturing and construction industries, as well as industrial processes) in the total GHG balance has been rather minor, currently 12 percent, although it has an increasing trend. In 2004, the largest amount of CO₂ emissions that are not related to energy consumption in Latvia's industry originated from mineral products (production of cement and clinker, lime, bricks and ceramic tiles), constituting 74 percent of the total CO₂ emissions from industrial processes. 18 percent of the total CO₂ emissions from industrial processes originate in metal and steel production from the use of dolomite, limestone and coke as raw material.

59. In 2003, 12 percent of total NMVOC emissions occurred in the industry sector, of which food industry accounted for 54 percent, road paving with asphalt 46 percent and steel production 0.2 percent.

60. Since the *Law on Pollution* (2001) became effective, the environmental impact generated by industrial enterprises is regulated through the integrated pollution permits. The increasing stringency of environmental legislation to reduce environmental pollution stimulates enterprises to implement new, economically feasible high quality technologies and management systems – such as Good Manufacturing Practice (GMP), quality management systems ISO 9001 and ISO 14001.

ANNEX 6: POTENTIAL GREENING PROGRAMS

1. A total of 18 greening programs have been tentatively identified as options for Latvian GIS. Most programs contain several activities, and total greening potential can be expanded, to certain extent, as a function of funding available—even though maximum amount of GHG emissions reduction will be somewhat physically limited in Latvian case. Maximum potential for some programs, like increase of biomass utilization would be even in the order of magnitude larger if substantial financing through GIS or in a form of other grants were available. Additional programs, especially related to non-GHG reduction, can be identified. Also, some of the proposed sub-project ideas may be dropped due to, e.g., high costs or small size. The currently proposed options cannot therefore be considered as final and will be built up as GIS concept is further developed in Latvia.

2. The total top down greening potential for each program is discussed and a summary is provided. The main assumptions for GHG greening potential are listed below. Should there be a need to change the main assumptions, GHG greening potential can be recalculated. Underlying data is based mainly on the 4th National Communication, other documents and on Latvian expert judgments using rather conservative assumptions. There is no official grid emission factor currently available. The use of higher baseline emission factor for projects reducing GHGs could be substantiated based e.g., on the operating margin emission factor and the build margin emission factor approaches utilized in CDM projects. The use of higher baseline emission factor would increase the volume of emission reductions. For example, the use of emission factor of 363 g CO₂/kWh, as proposed by the Dutch ERUTP program for Latvia could increase the Greening potential approximately by 1.6 Mt for the 10 year period.

3. The main assumptions are following:

- For each program, a technically and financially “practical potential” has been estimated, based mainly on Latvian expert judgment—maximum potential is larger;
- Indirect impacts on EU ETS are allowed whereas the estimated direct impact on EU ETS has been separately taken into account and reduced from potential GHG greening;
- Emission reduction calculations in heating sector are based on replacement of natural gas (with 1 percent of mazut), i.e., 56 g CO₂eq/MJ;
- Average emission factor for grid electricity is approximately 150 g CO₂eq/kWh;
- Saved biomass is assumed to replace natural gas in other installations and new biomass based capacity is assumed to replace planned fossil fuel (natural gas) capacity; and
- Financial support under the GIS can either be up-front payment or, more likely, payments based on performance. In order to make different disbursement instruments comparable, the numbers used are expressed as net present values of the payments under the GIS.

4. Most GHG greening programs offer further benefits in addition to GHG reduction and/or avoided emissions: (i) emissions of conventional pollutants can be reduced in some cases; (ii) heat tariffs may be lowered as fuel procurement will be less dependent on fluctuating oil prices; (iii) fuel supply will be more stable, secured and independent; (iv) fuel is produced locally and money and taxes stay in Latvia; (v) additional revenues could be provided, e.g., for local wood processing companies; (vi) natural resources can be saved by more effective use of biomass, and (vii) local employment opportunities can be provided.

Potential program 1: Heat only biomass boilers

5. This program could typically consist of small biomass boilers replacing fossil fuels and/or also improving energy efficiency of existing boilers. Project would be implemented by private or municipal companies. As discussed in Annex 5 there is a major potential in Latvia to increase biomass utilization. Typical project could be installation of biomass fired boiler with capacity of 3 MW. Typical total investment would be LVL 0.4 million (0.57 million Euro) and the total potential in small centralized heat production systems would be up to about 250 units.

6. Several barriers slow down potential investment. DH companies are under political pressure to establish inadequate heat energy tariffs, which are covering only the production and maintenance costs with no possibilities to increase tariffs for investments.

7. The current energy choice to a high extent is determined by availability of natural gas. The most consumers, who have access to natural gas, use gas due to the high level of usage comfort and relative low investments in comparison with biomass. Therefore, for the promotion of the biomass use, the development of the technologies and attraction of the additional investments is crucial. Increasing price of natural gas may, however, somewhat change the view.

8. There are currently no real sponsors. Government and EU funding is insufficient and not available for small scale projects. Typically 30 percent, or in some cases up to 70 percent of total project investments, would need to be covered by GIS (or other grants), based on Latvian expert opinions.

9. It is estimated—very conservatively taking into account potential for replication—that new boilers could replace 100 GWh/a of heat currently produced by fossil fuels, by 2012. Total feasible greening potential is estimated to be 150 kt for the 10 year crediting period. EU ETS is estimated to limit the potential to about 75 kt.

Potential program 2: Promotion of efficient biomass and geothermal energy use in households

10. This program could typically consist of replacing low efficiency firewood boilers in private sector with efficient ones. Fuel switch projects are also projected (mainly from natural gas to biomass). Practically almost all 300,000 family houses are privately owned with individual heating, and in 2/3 of them obsolete boilers are used. The most feasible solutions are automatic wood pellet boilers. Typical project would be installing a boiler utilizing wood pellet in scale of 10 to 500 kW. One 25 kW boiler cost LVL 4,000 and an average public/industrial house 200 kW boiler costs LVL 7,000.

11. There is currently no public support for biomass promotion in private sector. The replicability potential of the projects would be very large, up to 200,000 houses. Typical need for GIS (or other grant) financing per project would be 50 percent of financing, most likely as an advance payment.

12. Installation of heat pumps with capacity of 16 kW provide additional opportunities for this program theoretically up to 100,000 private houses. Typical project cost would be LVL 7,000 (10,000 Euro) and typical need for GIS (or other grant) financing per project would be 50 percent. There is no financial support for geothermal energy in private sector.

13. It is estimated, again very conservatively taking into account the potential for replication, that efficient biomass boilers would save 100 GWh/a of biomass and 50 GWh/a of geothermal energy is utilized, by 2012. Practical total estimate of greening potential is approximately 230 kt (taking into account the electricity needed for heat pumps) for the 10 year crediting period with no impact from EU ETS on emission reductions.

Potential program 3: Biomass based combined heat and power generation plants

14. This program could typically consist mainly of small co-generations plants replacing old heat only plants utilizing fossil fuels, or improving energy efficiency of existing plants. Project would be implemented by private companies or by municipal companies.

15. Typical project could consist of steam boiler fired by biomass with a total capacity 3 MW with electric capacity of 0.6 MW and thermal capacity of 2.4 MW. Project costs would be LVL 1.7 million (2.4 million Euro). The state support instruments are currently not sufficient for successful development of cogeneration. Typically 30 percent, or in some cases up to 70 percent of total project investments, would be needed to be covered by GIS (or other grants), based on Latvian expert opinion.

16. However, forthcoming feed-in tariff for electricity generated by small CHPs - up to 4 MW_{th}, may make small CHPs feasible. If feed-in tariff is high enough, GIS support may be needed for social programs in order to compensate increased price of electricity for certain segments of population. If the feed-in tariff is not sufficient, GIS support will be needed for investments.

17. It is estimated that new CHPs could generate 250 GWh/a electricity and 550 GWh/a heat by 2012. Practical estimate of greening potential is approximately 1,100 t for the 10 year crediting period. EU ETS is estimated to limit the potential down to about 550 kt.

Potential program 4: Small hydropower plants and wind power

18. The production in small hydro plants could be increased by means of modernization of existing plants. Estimated increase of production is 10-20 percent, taking into account the financial and technical possibilities.

19. Typical hydropower project could be renovation of small hydropower plant with capacity of 1 MW_{el} by a private company. Total project cost would be LVL 1.58 million (2.26 million Euro) and up to 75 percent subsidies would be needed. There is currently no financial support. Forthcoming feed-in tariff could, however, change the situation by the end of the year.

20. Typical wind power project could have capacity of 11 MW implemented by a private company. Project cost would be approximately LVL 7.8 million (10.6 million Euro). As there is currently no financial support, subsidies up to 50 percent would be needed. Forthcoming feed-in tariff could, however, change the situation by the end of the year. If the forthcoming feed-in tariff is sufficient enough, it is estimated that private developers would implement wind projects with no additional GIS or other grant support. This may, however, raise the question of social support

needed in order to compensate price increase. The Ministry of Economics has already issued permits for capacity of 225 MW, while the implemented capacity is 27 MW.

21. It is estimated that by 2012 additional 310 GWh/a of electricity could be generated by wind and hydropower. Estimate of greening potential of this program is approximately 350 t for the 10 year crediting period with no direct impacts on EU ETS.

Potential program 5: Solar energy

22. Even though solar intensity is limited in Latvia, some potential exists for the period from the end of April until the beginning of September. A typical project could be installation of solar collectors with area of 60 m² for heat on the roof of public building (schools, hospitals, and swimming pools) or apartment buildings.

23. The total project cost would be LVL 60,000 (90,000 Euro). As there is currently no financial support, subsidies at least of 50 percent would be needed in order to cover high investments costs.

24. It is estimated that additional 27 GWh/a (0.25 percent of the total production) of heat could be generated by 2012. However, the challenge is rather high investment cost. Practical estimate of greening potential is approximately 41 kt for the 10 year crediting period with no direct impacts on EU ETS.

Potential program 6: Production and promotion of bio-fuels

25. Production and promotion of bio-fuels, especially in the transport sector would provide important potential for greening and could possibly exceed the EU requirement of 2 percent by 2010. In addition, bio-fuels could be utilized in energy production.

26. A typical energy sector project could be natural gas substitution by biodiesel, i.e., installation of a new biodiesel burner, oil tank and oil feeding system for existing gas boiler with capacity of 3 MW by private companies or companies owned by municipalities. The project could be replicated up to 100 small centralized heat production units.

27. Total project costs are LVL 0.04 million (0.06 million Euro). Investment level for such projects is relatively low and subsidies up to 30 percent have been proposed by Latvian sector specialists. The main barrier for using biodiesel instead of natural gas is high fuel costs.

28. Practical estimate of greening potential of this program is approximately 1,850 kt for the 10 year crediting period with no direct impacts on EU ETS. The major potential could come from substituting 75,000 t/a fossil fuels in transport and minor share from replacing 50 GWh/a fossil fuels in energy production until 2012.

Potential program 7: Biogas utilization

29. This program could typically consist of anaerobic biogas digester processing 14,300 t/a of cow manure (530 cows) and 4,000 t/a green biomass (maize and grass) producing approximately 1.3 mill. m³ of biogas. Approximately 2.5 GWh of electricity and more than 3 GWh of thermal energy could be produced annually. Typically, private farms could implement these projects. Consequently, farms could fully supply themselves with energy resources.

30. According to Latvian regulations, manure storages have to be constructed. A biogas facility will serve as manure storage but the main achievement will be energy utilization. The quality of manure will be improved and after the digestion it will be used as fertilizer. Odor problems would also be limited. In ideal conditions, the manure should be mixed with green biomass in order to increase biogas output substantially. Biogas could be produced in cattle farms (min. 300 cows), or pig farms (min. 300 pigs) or in poultry farms with at least 8,000 hens. There are up to 85 large enough farms in Latvia.

31. Typical capital costs would be LVL 1 million (1.4 million Euro) with typical support of 60 percent needed. There is a lack of financial resources, as well as lack of guarantees for loans. Also political support is lacking. There are, however, some subsidies for growing biomass, and elaboration of tariffs for electricity purchases from biogas are currently discussed.

32. Practical total estimate of greening potential is approximately 900 kt during the ten year period with no direct impacts on EU ETS. Calculation is based on estimated production of 256 GWh/a electricity and 394 GWh/a heat until 2012.

Potential program 8: Energy efficiency in energy generation

33. This program could typically consist of installation of flue gas condensator for biomass boiler with capacity of 8 MW by private sector or companies owned by municipalities. Typical project costs would be LVL 0.25 million (0.35 million Euro) with approximately 25 percent or LVL 0.06 million (0.08 million Euro) GIS (or other) subsidy needed. There is currently no public support for these types of projects.

34. Projects with an integrated approach (production – distribution – final use) could also be feasible, and this approach will be studied when individual GIS projects are identified.

35. Practical total estimate of greening potential is approximately 1000 kt when taking into account other potential, i.e., typical energy efficiency measures that could increase efficiency of generation of district heat by 5 percent (including fossil fuel fired plants). It is tentatively estimated that 80 percent of these emission reductions would be covered by EU ETS thereby reducing greening potential to about 200 kt.

Potential program 9: District heating rehabilitations

36. This project program could typically consist of replacement of main pipelines built in the 1960s with a total length of about 10 km. The project would be implemented by a municipal company. The typical heat losses are 23 percent, and project would reduce losses by about 10 percent resulting also in savings of LVL 45,000 annually.

37. Total project costs, including installation works would be approximately LVL 0.8 million (1.1 million Euro). As there is currently no financial support, subsidies up to 50 percent would be needed. There may be possibilities, however, for EU and for some municipal funding.

38. The barrier for investments in the energy efficiency measures most often is inadequate heat energy tariff due to political reasons. Tariffs cover only the production and maintenance, leaving no room for investments. Practical total estimate of greening potential is approximately 550 kt based on 360 GWh/a of saved heat by 2012.

Potential program 10: Improving energy efficiency in buildings

39. Energy efficiency measures in buildings may provide the largest share of GHG greening in Latvia. Public buildings are especially promising and may be prioritized as there are no State aid issues and projects would be easier to administrate. Projects can be implemented by government, municipalities or municipal companies.

40. The potential for replicability is high and several types of public buildings can be included in this group, i.e., schools, kindergartens, museums, office buildings, prisons and hospitals, in addition to private buildings.

41. A typical project would consist of energy efficiency measures in public buildings, like in a hospital. A typical heated floor area could be 10,000 m², specific heat energy consumption of 220 kWh/m²/year and specific electricity consumption would be 70 - 80 kWh/m²/year. The heat is supplied from hospital's boiler house and no energy efficiency measures have been implemented. Many hospitals are 30 - 100 years old and the majority has been designed, based on Soviet building codes and standards. The equipment is very old and inefficient. Lack of proper maintenance and investments in renovation has resulted in outworn building envelope and increased energy consumption.

42. Measures could include insulation of building envelope (roof, walls, basement and windows), heat insulation of heating and hot water pipes, substations, thermostatic valves, change of boilers, change of district heating pipelines from boiler to buildings, and change of electricity consuming devices and equipment.

43. Depending on the building, existing energy consumption and implemented measures, annual energy savings on heat would be between 50 -100 kWh/m² and electricity 10 and 25 kWh a year generating also 21,000 Euro annually savings on heat and 10,000 Euro a year on electricity.

44. Total project costs for typical EE measures could be LVL 510,000 (700,000 Euro). 7-14 percent would be needed for energy audit and documentation, 60-80 percent for materials and equipment and 20-40 percent for installation. GIS financing could have an important impact on energy efficiency measures as there is clearly a lack of funding. Typically, at least 30 percent of grant financing would be needed. While a very well established commercial loan system with attractive conditions exists, not many municipalities take loans due to legal barriers– loans are controlled by the Treasury and many municipalities have reached the limit. Existing and upcoming government and EU funding will be rather limited.

45. Third Party Financing (ESCOs) would be also an option for implementation of EE measures in public sector. Due to several legal, psychological, and technical barriers additional measures and would be needed to support Third Party Financing.

46. In addition to projects in public buildings, further project opportunities can be identified e.g., in the following areas:

- Energy efficiency in apartment buildings offers major potential for greening. A typical project would be a building with heated floor area of 3000 m² with 60 privately owned apartments with specific heating energy consumption of 150 kWh/m²/year;
- Energy efficiency in new apartment buildings. Although the Latvian building code is strict, heat consumption in new buildings still can be decreased by 40-60

kWh/m²/year by implementing more energy efficiency measures from designed specific heat energy consumption of 80-100 kWh/m²year;

- Energy efficiency in single family houses (see also program 2);
- Energy efficiency in industry; and
- Demand side management measures for electricity consumption (street lightning etc.).
- Ownership issues can slow down EE measures in apartment buildings. In order to take legally binding decisions, more than half of apartment owners have to support particular decision. This is typically very hard to achieve. Barriers due to prevailing practices, fear of taking loans, lack of willingness to change and lack of motivation are also barriers for implementing EE measures.

48. Practical total estimate of greening potential is approximately 2300 kt in ten years with no direct influence on EU ETS, taking into account efficiency measures only in 60 percent of total building stock. Total estimated savings are 2700 GWh/a (20 percent savings of heat and 15 percent savings of electricity are assumed).

Potential program 11: Environmentally friendly transportation system

49. Traffic volumes and CO₂ emissions are increasing and are typically hard to control. Clear potential exists as GHG emissions from transport sector were 2.9 Mt in 2004, an 8 percent increase from 2003. The actual projects to be potentially included in GIS will be identified by a parallel activity identifying projects for the greening programs. Preliminary discussions have focused on public transport projects and programs in big cities in Latvia.

50. A hypothetical example of reducing or avoiding 5 percent of transport related GHG emissions could give GHG greening potential of approximately 1000 kt during the ten year crediting period.

Potential program 12: Capacity building for GIS management

51. A successful GIS scheme requires strong institutions. Detailed institutional development program would need to be prepared and implemented for greening to be effective and credible.

52. Furthermore, the technical assistance in project preparation for private and municipal companies can be targeted by the GIS. AAU revenue could be used to co-finance environmental assessments, feasibility studies, project proposals and other preparatory documentation.

Potential program 13: Monitoring and verification of environmental effects of GIS

53. Under the GIS, the projects and programs may need to be monitored and verified at the stages of appraisal, implementation and perhaps also operation. Results achieved by the greening measures may need to be reported to the buyers and the public. The methods and procedures for monitoring and verification, as well as reporting standards may be included in a special document (“Protocol”), which would be subject to negotiations with the buyers and attached to the AAU purchase agreement. A reasonable balance between the level of detail and costs of monitoring in order to ensure accountability for results without creating excessive burden on Latvian institutions, and above all on project owners. Development of such “Monitoring, Verification and Reporting Protocol” may be considered an indispensable expenditure to ensure a credible greening, and thus – could be proposed for financing from AAU revenue.

54. As further elaborated in Chapter 11, monitoring and verification of project results will – up to the extent possible – rely on existing competent Latvian authorities, such as the Latvian State Environmental Service (specifically Environmental Inspectorate). Its capacity needs to be built to ensure credibility of the scheme. There may be a need and rationale to involve private, accredited GHG verification companies. The costs of monitoring and verification are likely to be shifted to final beneficiaries. Some degree of public financing, e.g., from the AAU revenues may be necessary, however.

55. More specifically, the program may consist of the following activities:
- Strengthen inspection activities of Regional Environmental Boards;
 - Strengthen the Environmental State Bureau;
 - Strengthen the resources of Latvian Environmental Investment Fund (or other fund designated to be responsible for GIS) project management for monitoring and verification, as applicable; and
 - Subsidize costs of private verifiers, should the use of these be required.

Potential program 14: Capacity for climate policy development and management

56. The Ministry of the Environment is going to need stronger capacity to effectively deal with the supervision of the GIS and IET, as well as with implementing climate mitigation and adaptation measures, including preparations for post 2012 commitment. Specific capacity building measures may be considered by some buyers as a justified use of small amount of AAU revenues.

57. The Ministry of the Environment is in the process of preparing an overview of scope and costs of specific policy development tasks as a greening program.

Potential program 15: Emission reductions of local pollutants (e.g., VOCs) and ambient quality monitoring

58. Reduction of conventional air pollutants e.g., SO₂, NO_x, CO, Particular Matter and non-methane volatile compounds (NMVOCs), as well as other water pollutants and waste is considered as acceptable greening by several potential buyers. In principle it is possible to “convert” reductions of conventional air pollutants to CO₂eq, based on marginal external costs of damages caused by one ton of different pollutants.

59. Based on views of Ministry of the Environment, the potential for using AAU revenues for reduction of conventional pollutants is not significant in Latvia, due to significant effort made by Latvia already to improve environmental quality, and a limited use of heavy fuel oil and coal. One potential use of AAU revenues would be to accelerate reduction of emissions of MNVOC from: (i) paint industry and workshops; (ii) petrol distribution; (iii) transit terminals; as well as (iv) printing industry. Measures would be partly required by the EU VOC Directive. In addition, it will be feasible to estimate changes of emissions of conventional air pollutant in each program as applicable.

60. Due to extensive use of biomass and fire wood, a potential exists to use AAU revenues to reduce uncontrolled particle emissions from the existing sources and enhance ambient air quality monitoring of PM₁₀ and PM_{2.5}.

61. The actual projects to be potentially included in this program, as well as estimated costs and benefits may be identified during the GIS implementation phase.

Potential program 16: Climate change adaptation

62. Based on current understanding, adaptation will be necessary in any case to be able to adapt to some seemingly unavoidable adverse impacts of climate change. In the Latvian case, one potential threat is the rise of sea level. A 1 to 3 meter rise would divide the country into two parts.

63. Some adaptation measures could include synthesis of available information, assessment of vulnerability to current climate variability and extreme events and of areas where risks would increase due to climate change, identification of key adaptation measures, as well as criteria for prioritizing activities, and selection of a prioritized list of activities. They could also include, e.g., data collection and observations, climate modeling, scenarios, research and technologies for adaptation. These measures may be considered “greening” measures for some buyers, even though some buyers may see it differently. These measures will be elaborated and substantiated when GIS is further developed in Latvia, also taking into account EU funding. According to The Ministry of the Environment, one of the most urgent needs in Latvia is a climate scenario modeling for flood management.

64. Several greening subprojects can be identified in this program. So far one concrete idea has been identified by the Latvian Environment, Geology and Meteorological Agency, i.e., development of climate change scenarios mainly for flood management purposes, with total costs up to LVL 2-4 million (2.7-5.4 million Euro).

65. Other typical projects/programs in this program could consist of: (i) synthesis of available information, data collection and observations; (ii) assessment of vulnerability to current climate variability and extreme events, and of areas where risks would increase due to climate change; (iii) identification of key adaptation measures; and (iv) technologies for adaptation.

Potential program 17: R&D and promotion of low carbon, BAT and clean production

66. In the longer run, R&D and promotion of low carbon technologies as well as cleaner production will be crucial to reduce and prevent growth of GHG emissions. The research and development activities that would provide general, public benefits (knowledge and information), thus would not be financed by the private sector in the foreseeable future can be considered as justified greening measures.

67. Typical projects in this program have not yet been elaborated. Issues like: (i) what technologies would be relevant in the Latvian case; (ii) what stage of their development needs support; and (iii) how support should be structured, may be elaborated when GIS is further developed in Latvia.

Potential program 18: Awareness raising and wider capacity building

68. Awareness raising and wider capacity building are important factors for climate change mitigation and adaptation. It can be argued that investing GIS revenues in these activities could indirectly generate climate benefits in a long run. This potential as a greening measure may not be palatable for some buyers. These measures may be elaborated and substantiated when GIS is further developed in Latvia.

Summary of programs

69. Tentative analysis indicates (see Chapter 6.1. for details) that the feasible potential for GHG emissions reduction during 10 year crediting period is approximately 7 Mt, taking into account the impact on EU ETS sector. Without EU ETS, the potential is approximately 8.5 Mt. Using higher emission factor for grid would increase ERs approximately by 1.6 Mt for ten year period. These estimations take into account a lead time needed for project implementation, i.e., effective crediting period is 7.5 years. Longer crediting period would naturally increase the amount of reduction of GHG emissions that could be credited against AAU sales.

ANNEX 7: OUTLINE OF OPERATIONAL MANUAL OF A GIS FUND

1. Objectives and Main Operating Principles
 - Major Objectives
 - Principles of Operation
 - Sources of Finance
2. Institutional Set-up
 - Organization and Governance
 - Role of Buyers
 - The Management Agency
3. The Fund Manager
 - Role and Guiding Principles of Operation
 - Major Responsibilities of the FM
 - Key FM Staff
 - FM Support Staff
 - External Experts
 - Terms of Engagement of FM
4. Financing Strategy and Eligibility Criteria
5. Financial Products
 - Performance based grants
 - Upfront investment grants
 - Financial Product Structuring
6. Technical assistance
 - Information Barrier Removal Activities
 - Capacity Building
 - TA Approval and Authorization
7. The Project Cycle
 - Phase 1: Project Identification
 - Phase 2: Initial Project Screening
 - Phase 3: Comprehensive Project Appraisal
 - Phase 4: Financial Structuring of the Project
 - Phase 5: Project Approval
 - Phase 6: Financial Closure and Upfront Disbursement
 - Phase 7: Project Monitoring and Performance Disbursements
 - Phase 8: Dispute settlement and grant recovery procedure
8. Relationships with Co-financing Partners
9. Procurement Procedures
10. Environmental Screening and Assessment
 - Project Classification
 - General Approach

- Ineligible Projects
 - Institutional Arrangements and Process
 - Exceptional/Disputed Cases
11. Reporting Requirements and Monitoring Procedures
 - Reporting TimeTable
 - Business Plan
 - Annual Report (including environmental performance report)
 - Operational Budget
 - Financial Monitoring Reports
 12. Verification of greening results
 13. Financial flows
 14. Financial Management System

ANNEX 8: OVERVIEW OF ROLES OF COMPETENT AUTHORITIES AND THEIR TASKS

1. Competent national Latvia's governmental agencies participating in control of emissions together with mitigation of climate change are:

- Ministry of the Environment;
- Environmental State Bureau;
- State Environmental Service and its Regional Environmental Boards; and
- Latvian Environmental, Geological and Meteorological Agency.

Ministry of the Environment

2. **The Ministry of the Environment** plays traditional regulatory and policy development functions. The Ministry is the competent government agency to coordinate efforts of Latvia's government to comply with the requirements of the Kyoto Protocol. As such, it is responsible for policy development, administration of policy implementation and securing incorporation of environmental considerations into other sectoral policies. European environmental legislation is fully transposed to national Latvian law. The EU climate policy was used as a basis for development of national climate change mitigation policy, with majority of the policy instruments and measures similar to those adopted in other EU countries.¹¹⁰ This includes GHG allowance trading within the Community, taxation of energy products and electricity, promotion of cogeneration, energy performance for buildings, energy labeling, efficiency requirements for new hot-water boilers, reduction of CO₂ emissions from vehicles, promotion of the use of bio fuels or other renewable fuels for transport, the landfill of waste, ozone depleting substances and fluorinated GHG, etc.¹¹¹

3. Climate mitigation and adaptation policy is implemented through the *Climate Change and Renewable Energy Department* (established in 2004), which coordinates development and implementation of climate policies, and ensures compliance with Kyoto commitments, including supervision of National Inventory of Greenhouse Gases, National Registry of Kyoto commodities and national reporting to the UNFCCC. The department has also played a primary role in the establishment of a national reporting system to meet reporting obligations set by the UNFCCC and the Kyoto Protocol through preparation of annual inventories on GHG emissions and CO₂ removals, assumed a supervisory role to working out the calculations of assigned amounts that has to be completed by Latvia by mid June 2006, and in launching National Registry in November 2005. The Department coordinated preparations of "*National Environmental Policy Plan 2004-2008*" (2004), "*Climate Change Mitigation Programme 2005-2010*" (2005), and the most recent document "*Concept on participation of Latvia in IET*", which was approved by the Cabinet of Ministers on 12 April 2006. The department played the leading role in preparation of

¹¹⁰ Concept on participation of Latvia in IET (Order of the Cabinet of Ministers, No 249, adopted on April 12, 2006).

¹¹¹ in detail in Appendix 2 to the Fourth National Communication of the Republic of Latvia to the UNFCCC.

the latest Fourth National Communication of the Republic of Latvia to the UNFCCC¹¹² and the Report on Demonstrable Progress. The Department also coordinates the implementation the EU ETS. The Department consists of 12 staff headed by a Director.

4. Interagency coordination on climate issues seems to be intensive and ongoing. The Ministry of the Environment actively cooperates with the Ministries of Economy, Agriculture and Finance, and local authorities (e.g., recent Minister of Environment call for local Riga initiative to support climate change campaign).

5. In addition, The Ministry of the Environment plays an important role in managing EU structural funds for environment and in mobilizing other financing sources for environmental projects.

6. The programming and co-ordination of activities linked to financing provided by International Financial Institutions (IFIs), European Union programs and funds, as well as management of involvement of the Ministry into projects co-financed by EU pre-accession financial instruments fall into the responsibilities of Investment Department operating within the structure of Ministry of the Environment. Moreover, the responsibilities of the Investment Department include elaboration of number of government documents on environmental investment including policy, strategy, priority lists for environmental investments, Public Investment Program for environmental sector, together with financial aspects, i.e., strategy on financing leverage. The Department is also responsible for developing implementation instruments as a procedure to supervise and administer EU co-financed projects. The Investment Department ensures that procedures for management and supervision for implementation of EU co-financed projects are in place and updated, as needed. The Department consists of the following three divisions: Strategy and budget, Finance management, and Quality management division responsible for development and updates of internal quality management system. Staff of the department consists of 13 persons and is headed by a Director being a Deputy Secretary of State of the MOE.

7. Two other departments within the Ministry's structure participate in implementation of investment strategies and are responsible for evaluation and implementation of environmental infrastructure projects. The Project Development Department deals with development and implementation of projects (with a focus on waste water and waste management), including projects receiving EU financing. The Project Implementation Department and External relations division are in charge of procurement and implementation monitoring. Their role is to ensure that implementation and monitoring of the EU co-financed investment projects conform with requirements of the EC and Latvian legislation, and provisions of the respective financing memoranda. Project implementation department is responsible for development of reports on environmental investments.

Environmental State Bureau

8. Key responsibilities of the Environmental State Bureau include supervision of the environmental impact assessment (EIA) procedure (including screening decision, scoping, evaluation of EIA report and ensuring public consultations), and establishment and maintenance of EIA information database. In addition, the Bureau revises complaints concerning issuing of permits and permit conditions, and works in close cooperation with the Regional Environmental Boards on issues with regard to EIA screening decision. The main tasks and responsibilities of the

¹¹² Earlier reports were submitted in 1995, 1998, 2001.

Environmental State Bureau are defined in the *EIA Act and Cabinet of Ministers Regulations No. 87, 17.02.2004 on procedure for conducting EIA*. Information on EIA procedure and projects subject to EIA are to be found in the Bureau Internet site: <http://www.vidm.gov.lv/ivnvb/Eivn.htm>. The EIA Act and Regulations implement EC Directive 85/337/EEC as amended by Directive 97/11/EC and 2003/35/EC. Latvia's EIA standards are considered compatible with the international good practice.

State Environmental Service

9. The State Environmental Service was established in its current structure of central unit and eight Regional Environmental Boards, which were previously operated as separate institutions, in early 2005 with the aim to improve the environmental management. The Service is responsible for environmental permitting and monitoring of enforcement of environmental legislation, and auditing.

10. There are three categories of installations recognized (A, B, C),¹¹³ which are assessed and assigned based on type and magnitude of impact, which installation may have on environment. Categories A and B require permit, while for installations assessed as C, an operational permit is not issued and they operate and are registered based on owner declaration only.

11. In order to obtain operational permit, proponents/operators of installations are obliged to present to the Service, namely the Regional Environmental Board respective of location of considered installation, an application developed in a format specified by Annex 4 to Regulation of the Cabinet of Ministers No. 294 of 9.07.2002 (including amendments to the Regulations) providing extensive description of a technology applied, consumption of raw materials, information about emission levels to air, water, soil, streams of by-products and wastes produced, and measures to be used to minimize these streams. Narrative information is supplemented by information on concentrations of relevant pollutants and calculations of emissions. The application is reviewed by the respective Board and, if necessary, a proponent is responsible to supplement additional required information. For applications of satisfactory quality, a 5-year permit is issued specifying operating conditions and permissible emissions, including requirements as to scope and format of annual monitoring reports and compliance schedule, if justified.

12. Annual reports are submitted by operators to the respective Regional Environmental Boards and both, Regional Boards and State Environmental Service if justified by the type and magnitude of installation. Self-monitoring of installations, to which permits were granted is mandatory to operators; annual reports developed by operators are filled with data supported by measurements of pollutants done by one of state or private accredited¹¹⁴ laboratories.

13. Although self-monitoring activities are promoted, a procedure of inspection is in place and inspections are performed by the State Environmental Service staff routinely¹¹⁵ - these may be complex or so called 'single issue' inspections focused on air, soil, ground water, etc. Results of inspections are presented in standardized format providing with observations,

¹¹³ Examples: Category A – installations which require IPPC permits (incl. energy generation plants of capacity above 50 MW); Category B - installations to which 'cleaner production' applies (incl. energy generation plants of capacity 5 – 50 MW); and C – small installations and energy generation of capacity 0.2 – 5 MW.

¹¹⁴ by Latvian Accreditation Bureau. In the past each of Regional Environmental Boards used to operate its own certified laboratory, since early 2005 and establishment of Latvian Environmental, Geological and Meteorological Agency, these laboratories were organizationally transferred to LEGMA.

¹¹⁵ around 250 inspectors.

recommendations, if necessary, listing orders issued by an inspector and compliance schedule. The Regional Environmental Boards produce annual compliance reports summarizing results of conducted inspections. *Administrative Law* allows impose non-compliance penalties. Information on inspected installations, actions taken, incl. administrative sanctions is publicly available (via internet).

Latvian Environmental, Geological and Meteorological Agency

14. The state 'Latvian Environmental, Geological and Meteorological Agency' (LEGMA) was established in early 2005 by merging three former state agencies responsible for hydro-met, environment and geological service. The aim of this merger was to establish unified and seamless information system to improve collection and presentation of data on environment. In addition to development of the unified environmental information system, other main activities implemented by the Agency are: (i) monitoring; (ii) duties of national reference laboratory; (iii) data processing, compilation and assessment; (iv) registration of chemical substances, chemical products and biocides; (v) reporting; and (vi) dissemination of environmental information. As a result of the organizational changes of 2005, accredited laboratories formerly included in the structure of the Regional Environmental Boards became subordinated to the Latvian Agency for Environment, Meteorology and Geology.

15. Data is provided by State Environmental Service, including Regional Environmental Boards through quarterly reports, Ministry of Agriculture, Ministry of Transport, Central Statistical Bureau and by individual enterprises operators of installations¹¹⁶ being subject to verification. Summary of data collected in agency data base are subject to quality assurance review with an active participation of Ministry of the Environment.

16. ***Responsibilities of LEGMA include development of national inventory and annual national GHG inventory report, as well as setting and operation of national registry.*** Dissemination of information to the public is secured through agency webpage,¹¹⁷ reports and publications (also in electronic form), and public events as seminars, conferences, exhibitions.

Environmental Consultative Council and Consultative Board of the LEPF

17. The Ministry of the Environment has established an Environmental Consultative Council, an advisory body, in cooperation with non-governmental organizations and professional associations. The role of the council is to encourage involvement of the public in decision making process and to facilitate information exchange, and public discussion on environment protection aspects related to formulation and implementation of environmental policy.

18. The Latvian Environmental Protection Fund has its own Consultative Board which evaluates projects, which are submitted to the Environmental Protection Fund prior to decision taking at the fund. Projects are of different range - from public campaign initiatives till projects that are aimed directly to improve environmental quality.

¹¹⁶ Operators are responsible for self-monitoring of installations they are in possession of.

¹¹⁷ www.lvgma.gov.lv

ANNEX 9: LATVIAN ENVIRONMENTAL INVESTMENT FUND

1. The Environmental Investment Fund Ltd has been established in accordance with the order of Cabinet of Ministers No. 64 on 12 February 1997 and has been registered in Commercial Register on 21 October 2004. The holder of 100 percent of shares of the Environment Investment Fund Ltd is the Ministry of the Environment of the Republic of Latvia. Shares are operated by the State Secretary at the Ministry of the Environment.

2. The structure of the Environment Investment Fund Ltd. consists of departments of project coordination and financing



3. The Fund activities:
- Financial service – combining local and foreign financial resources, to issue loans in order to support municipalities and commercial organizations in environmentally favorable project realization,
 - Project coordination – to distribute financial resources providing appropriate and qualitative project identification and project implementation supervision,
 - Consultations – to promote the identification of environmentally favorable projects and their preparation for financing, and also to increase the level of awareness about the opportunities and benefits of environment protection projects.

4. In 2005 the Fund has signed 50 new loan agreements with a total loan from the Fund of almost 4 million Latvian lats (LVL). This is the highest number of loan agreements signed by the Fund during one year and is almost one third of all loan agreements signed by the Fund. Mostly these are ERDF co-financed projects for water sector infrastructure development in populated areas with number of inhabitants below 2000. In order to provide necessary pre-financing for the implementation of the ERDF co-financed projects, a loan agreement on a credit line of 3 million Euro for the Fund was signed with Nordic Environmental Financing Corporation (NEFCO) in November 2005. This is the second loan agreement that the Fund has signed with the NEFCO.

5. Within the framework of the 1st activity of the Program of the Development Plan, called "Improvement of Environmental Infrastructure and Tourism", co-financing from ERDF is available for such activities:

- Development of water services in the agglomerations with p.e. <2000
- Closure and re-cultivation of small and medium-size non-compliant waste disposal sites
- Establishing waste separation and collection points
- Development of Eco-tourism in NATURA 2000 area

6. These projects present a good opportunity for municipalities to develop infrastructure that creates precondition for the further development of entrepreneurial activity, but is also a great challenge—especially for small municipalities. Therefore the Fund has taken an active role to provide all necessary support for project development and to supervise implementation.

7. The Fund supports municipalities during the project realization cycle starting from preparation of project documentation until the complete implementation of project and repayment of ERDF financing.

8. In total, the Fund has signed 141 loan agreements till 1 January 2006. 65 percent of projects relates to developing of water services including WWTP, 17 percent - air protection related projects, 6 percent - waste regeneration projects, 6 percent - renewable energy projects, 4 percent - for development of clean technologies and the rest - energy efficiency projects for buildings.

9. The Fund has experience with energy efficiency projects mostly because in year 2003 the Fund started a project "Heat insulation of buildings for energy-saving purposes" together with Ministry of the Environment of the Republic of Latvia and German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

10. The projects are evaluated using qualitative and quantitative evaluation methods. Qualitative evaluation method—procedure "Projects' Environmental impact assessment"—was developed in close cooperation with Phare consultants and taking into account World Bank recommendations. The procedure is aimed at identifying those types of projects that will have significant improvement to environmental quality. As part of the assessment, potential impacts to nature and human health are evaluated as well. Environmental impacts are evaluated based on EKO—points. Amount of EKO—points indicates the project's significance to improve environmental quality.

11. Quantitative evaluation is based on assessing projects results by estimating potential emissions to environment (e.g., tons of CO₂ per year).

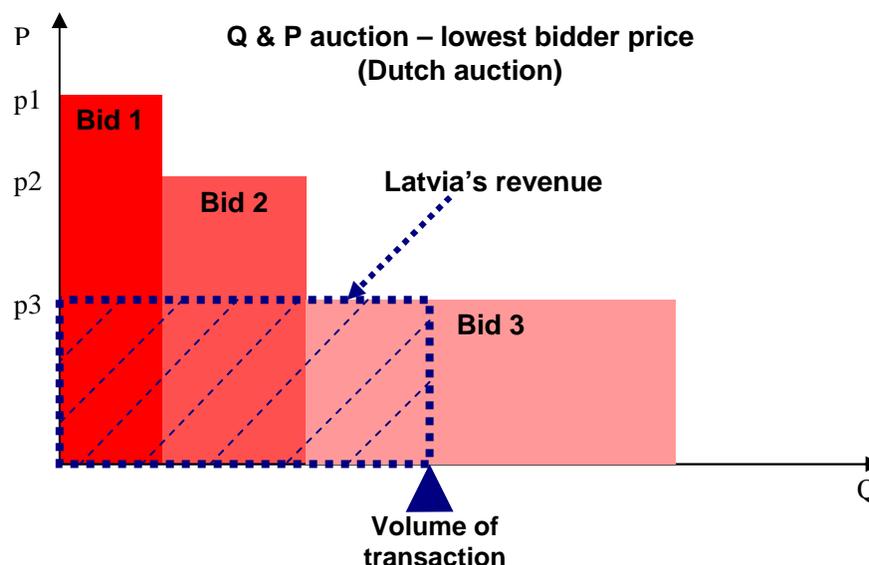
12. For different type of projects (e.g., water, air, waste) there are developed several monitoring methods. Monitoring is based on assessing planned improvements in quantitative and qualitative terms. For example, for renewable energy projects efficiency is estimated using of so called Erupt baseline methodology where 1kWh is equal to 392 g CO₂. The monitoring results are analysed once a year during the whole repayment period.

13. Since Fund has years of experience with environmental protection projects assessment and also a technical experience in some of GIS targeted project types (e.g., energy efficiency projects), there is a good potential to involve the Fund in GIS project management.

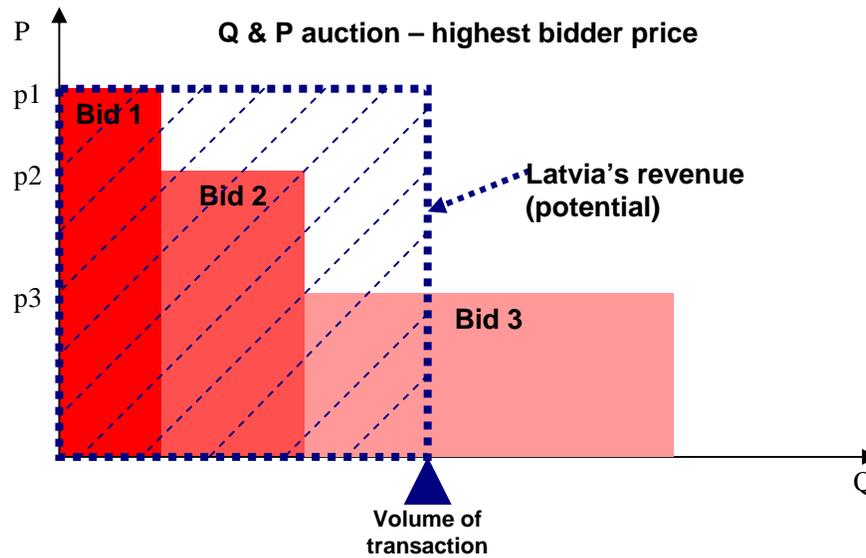
ANNEX 10: DIFFERENT MODELS OF AUCTIONING AAUS

A number of possible models of auction are presented below:

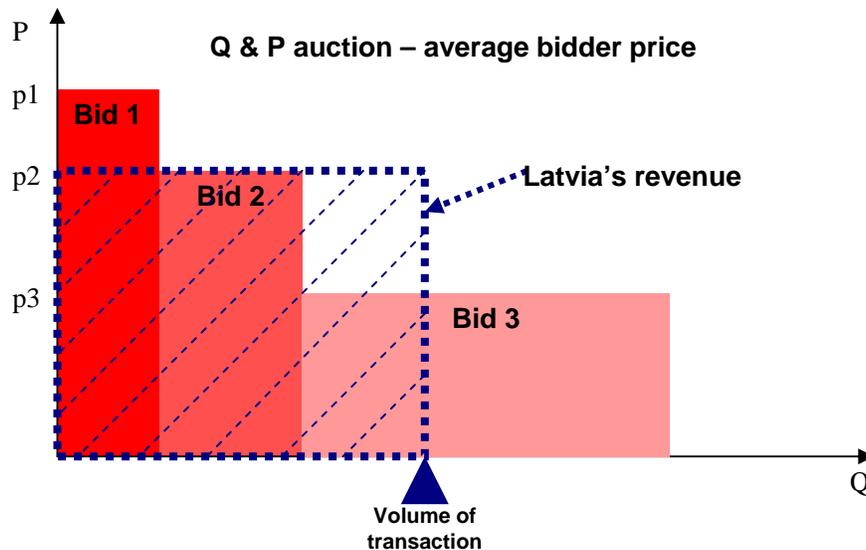
- (a) **Quantity and price auction with the lowest bid price for all (“Dutch Auction”)** is an example of an auction where buyers specify both price and quantity, but the purchase price (the same for all buyers) is set by the lowest posted price. In this auction, the highest price bidder is guaranteed to purchase the volume s/he wants to buy. If there are volumes left, the next bidder takes the volume s/he wants. This continues until all units are exhausted. All buyers take their requested quantity of units at the price offered by the cheapest bidder, who gets only the remaining share of units (which may be short of requested volume). Therefore, this auction eliminates most of a “producer surplus” from Latvia and decreases its revenue. It increases the buyers “consumer surplus”. Accordingly, this model of auction will be attractive for buyers, but not necessary for Latvia. In order to prevent the windfall profits to the buyers, Latvia may establish a reserve or floor price, which may or may not be made known to the buyers ahead of bidding. Theoretically, the floor price must be higher than marginal cost of all the greening projects and programs, but, in practice, it may be difficult to calculate the marginal cost. As one of the practical solutions, a price equal to a certain portion of the ERU price could be used.



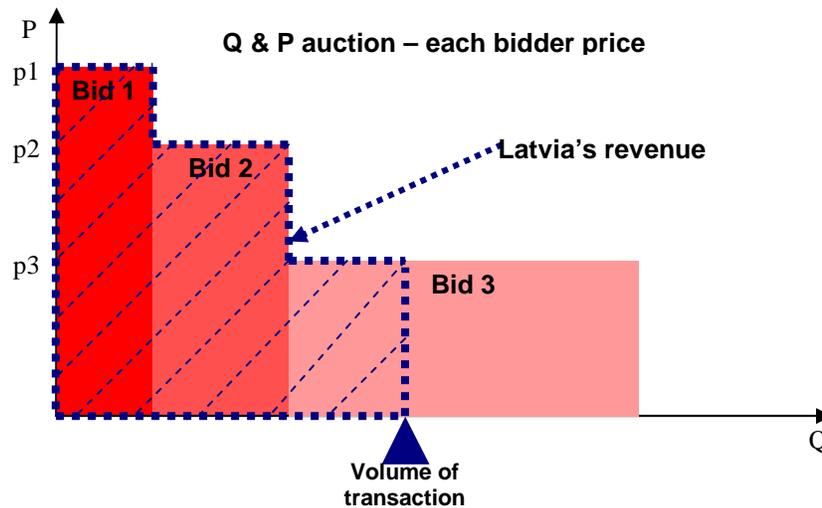
- (b) **On the other extreme** would be an auction where buyers specify both price and quantity and the final price (the same for all bidders) is set by the highest bidder. This would allow Latvia to capture a “consumer surplus” from the buyers. This would potentially maximize Latvia’s revenues of AAU sale. However, this would increase the risk that not the whole volume of AAUs is sold. The buyers who were willing to pay less than the final purchase price may drop out.



- (c) **A compromise solution** is an auction where buyers specify both price and quantity, and the final purchase price is the same for all bidders and calculated as the weighted average price of all bids (where quantity is a weight). This model of auction leaves “consumer surplus” for the high bidders and takes it away from the rest. This model keeps Latvia's revenue high, however, the risk that some volume of AAUs will remain unsold remains.



- (d) **Price and quantity auction where final price is different for each buyer and is its bid price.** This model of auction also does not leave surplus for the buyers, but lowers the risk of leaving unsold quantities.



- (e) **Fixed price auction based on quantity.** Bidders are offered the volumes they want to purchase (subject to some quotas) at a fixed price on 'first-come-first-served' basis. Latvia may want to apply some preferences to certain buyers, e.g., the first right of refusal to some group of privileged buyers. This model can generate any revenues, depending on the proposed price. There is a risk that the proposed price would be lower than the hypothetical market clearing price (thus decreasing Latvia's revenues) or too high (leaving some AAUs unsold).¹¹⁸
- (f) **Fixed quantity auction based on price (E-bay type of auction).** This model can be used for smaller volumes, like pilot transaction of AAUs, where the seller believes that there will be several buyers willing to take the whole amount put up for sale. Bidders compete only on prices and the highest bidder takes all AAUs available. The disadvantage of this model is that the total AAU asset of Latvia would need to be sliced into small packages. This could increase transaction costs of AAU trading and may discourage large scale reputable buyers. In addition, it may make it more difficult for Latvia to bring to market internally diversified AAU bundles backed by different greening measures. On the other hand, this kind of auction could be low risk and transparent way of determining market price of AAUs.

¹¹⁸ This model was successfully applied by Umbrella Carbon Facility in selling CERs from the Chinese CDM projects (where market price was easier to predict).

ANNEX 11: PRIVATE VERIFICATION AGENCIES IN JI AND EU ETS PROJECTS IN LATVIA

1. Established under the Kyoto Protocol, the Joint Implementation (JI) is an incentive for industrialized countries to reduce emissions through cooperative efforts as greenhouse gas (GHG) abatement costs are typically lower in EIT countries. The Kyoto Protocol requires that Track 2 JI projects are subjected to determination and verification by an Accredited Independent Entity (AIE), whereas for 1st Track of JI, the host country defines requirements. AIEs are still to be accredited, but Designated Operational Entities (DOEs) under the Clean Development Mechanism (CDM) may act provisionally until first AIEs are accredited according to nationally approved procedure. Latvia is likely to meet the strict eligibility criteria of Track 1 and therefore utilize national procedures for determination and verification as applicable.
2. In Latvia, there is no any national body accredited for CDM. However, in the international market there are several DOEs.
3. The Cabinet of Ministers has approved a Regulation on Implementing JI procedures in Latvia on 7 February 2006 (Regulations No 115). National verifiers are not yet accredited, but the above mentioned Regulations include provisions for verifiers' accreditation.
4. The EU ETS and national legislation (e.g., Cabinet of Ministers Regulations No. 778 of 7.09.2004 implementing the EU ETS directive requirements on verification and monitoring) requires that the carbon dioxide emissions from the installations be verified annually by independent accredited verifiers.
5. Currently the list of "Latvian National Accreditation Bureau"(LATAK) accredited verifiers that have been accepted by LATAK is available at www.latak.lv. According to the Cabinet of Ministers Regulations No. 778 of 7.09.2004 implementing the EU ETS directive requirements on verification and monitoring, only national verification bodies may be accredited. Verifiers from other Member States are not accepted by LATAK. In Latvia, the following verifiers are accredited to perform annual verifications:
 - Det Norske Veritas Latvia SIA Verification Unit;
 - SIA "Bureau Veritas Latvia" Inspection Institution;
 - A/S "IBNA" IBNA inspection;
 - SIA "Latvijas rūpnieku tehniskās drošības ekspertu apvienība" TUV Rheinland grupa "Darba aizsardzības un iekārtu novērtēšanas inspekcija".
6. Information about installations subject to EU ETS, which has received permits are to be found in the internet site of Latvian Environmental, Geological and Meteorological Agency <http://www.meteo.lv/public/28234.html>. 92 installations were subject to verification for 2005. Agency is also responsible for putting Installation Emissions Reports, Verification Opinion Statements and decisions made by Regional Environmental Boards on Agency Internet site to be publicly available.



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