CDM comes of age in Asia

Junji Hatano and Matthew Setterfield examine the rapid growth of the Clean Development Mechanism in Asia and how it is likely to evolve in the future.

The Clean Development Mechanism (CDM) has grown exponentially in Asia over the past 12 months. The number of projects registered has risen from nine in September 2005 to 150 in September 2006. These projects will receive an estimated 62 million tonnes of certified emission reductions (CERs) per year, with a conservative market value of $744 million. Asia has also grown in prominence in the CDM market, accounting for 49.5% of global projects and 71.5% of global emission reductions.

The main causes of this surge in Asian projects include:
- The finalisation of government and regulatory regimes in many key markets; the CDM is, of course, heavily dependent on regulation.
- The emergence of global carbon funds, including aggregators of credits and buyer pools and specialist developers. The estimated total investment in such carbon funds stands at around $5 billion.
- Capacity-building work carried out over a number of years by governments, private sector organisations and NGOs. This includes pioneering pilot projects set up when the future of the CDM was far from certain.

Below, we analyse this growth trend in terms of the patterns of investment coming into the market and try to identify some pointers for the future direction of the CDM in Asia.

In terms of project ownership, sources of financing and levels of involvement of CER buyers, we discern four key types of project structure:
- **Unilateral** — a host country project developer, working with either its own capital or with loans, plans and implements a project largely on its own, procuring technology through standard channels, and intending to sell the CERs only after they have been issued.
- **Weak bilateral** — again, the host country developer is largely working on its own to implement the project but decides, for a variety of reasons, to commit to sell the CERs at an early stage of the project. The CER buyer may provide partial up-front payment against some guaranteed level of future delivery. However, the CER buyer does not take an active role in project implementation.
- **Strong bilateral** — the CER buyer as well as, potentially, other Annex I (industrialised world) investors and technology providers, plays an active role in the project. Finance is provided against future delivery of CERs, and the outside investors may also take an equity stake in the project. However, the host country project developer retains a significant share of project ownership.
- **Outside consortium** — the CER buyer, along with other investors, technology providers and engineering contractors, actually carries out the project on behalf of a host country entity. Often, the owner of the project site receives payment from the consortium but is not directly involved in the details of project implementation or sale of CERs.

Each of these structures has attractions for different market players. A weak bilateral structure is ideal when investors wish to gain access to a high volume of CERs, spreading their risk across a large number of projects and countries, and avoid committing too much of their money to up-front payments. This approach allows a fairly high failure rate to be sustained by the investor’s portfolio, as failure by a few projects to deliver CERs should not usually result in a loss of capital.

Participation in an outside consortium requires a much deeper commitment to the underlying project. An example of how it works well is where the main driver behind the consortium is the CER buyer, who may provide partial up-front payment against some guaranteed level of future delivery. However, the CER buyer does not take an active role in project implementation.

**Mitigation of nitrous oxide (N₂O) emissions at nitric acid plants is a good example here.** Many owners of nitric acid plants are reluctant to carry out such projects by themselves, and will invite outside operators to execute the work and absorb the main risks associated with the technology and the carbon market. In return, the plant owner simply receives a share of the income from the CERs. The Indian market for such projects is rapidly becoming saturated and opportunities in China are also disappearing quickly, with a small handful of technology providers linking up with major carbon market players to aim for speedy deployment. Projects based on the destruction of HFC23 — another potent greenhouse gas — are other examples of where this model has been effective.

Strong bilateral projects can take a variety of forms. Simply making a buy offer for CERs is not necessarily enough to kick-start a project, particularly where the potential developer is not familiar with the technology or concepts involved. Carbon buyers often need to offer further services to gain access to the CERs — for example, by setting up a financial framework for the project, such as providing up-front funding and carrying out a feasibility study.
example, introductions to potential technology providers and project financiers.

Unlike the situation in weak bilateral projects, Annex I project participants may provide an injection of equity, enabling them to drive the project forward more effectively. This kind of arrangement can work well with waste-to-energy or fuel-switching projects, where some degree of outside technological assistance is needed, but the project may be too small to justify the creation of a special purpose vehicle. Where the methane capture specialists or aggregators are taking an active role in project implementation, in co-operation with a local partner. Where the methane is used for power generation, outside involvement becomes even more likely, due to the higher costs and tougher technical challenges.

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ecent rulings from the CDM Executive Board – which oversees the mechanism – regarding monitoring requirements for flaring, and severe default values for when flare performance efficiency cannot be monitored have taken the shine off methane capture projects a little, and achieving predicted levels of landfill gas collection and power generation is often proving more difficult than expected. Nonetheless, methane capture continues to be an attractive area for investment.

The project types mentioned above involved the destruction of methane, HFC23 and N₂O. From such projects, income from CERs will be the main, even the only, source of revenue. For most other project types, however, CER income will represent a much smaller share, often less than 10%. Nonetheless, if this relatively small revenue stream can be leveraged effectively, it can contribute significantly to project finance, and for projects in renewable energy, fuel-switching and energy efficiency, all four of the project structures outlined above are being seen.

Government policy can also have a major impact on investors’ decisions. In China, projects have to have a committed buyer for the credits in order to gain approval from the Designated National Authority (DNA), making pure unilateral projects impossible. This is creating a major opportunity for carbon buyers to buy up credits at a relatively early stage of the project, when they can rightfully claim that prices should be low as the credits are still a long way from being issued.

On the other hand, increasing competition from buyers, and government pressure to increase the offer price, may be reducing the attraction of the weak bilateral project. This may make China a less attractive destination for some of the specialist carbon funds, who would prefer not to get into too intimate a relationship with the underlying projects. Conversely, consortia or strong bilateral approaches, where investors actually take a stake in the underlying project, may see an increase in market share going forward. Similarly, in Malaysia, there must be clear involvement of an Annex I party, although the DNA there can accept the participation of a technology provider instead of a CER buyer.

It is well documented that Indian project developers have shown an overwhelming preference for taking a unilateral approach to CDM. At the time of writing in early September, 75 out of 94 registered Indian projects had no Annex I participant. Many project developers are taking the view that it is better to bring the project as close as possible to CER issuance before making a commitment to sell the future CERs. Indian projects are dependent in this regard on the government’s willingness to approve unilateral projects, and the relatively strong availability of capital in India for good projects. These represent true unilateral projects, with the developer clearly aiming to maximise the income from CERs, and prepared to accept the risk of a potential fall in carbon prices.

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n other Asian countries, there is a growing number of project developers that value the unilateral approach, but they tend to use the services of CDM specialists, for a number of reasons. Projects are facing increasing difficulty with both project registration and issuance of CERs. Lack of knowledge of the ever-changing CDM rules may lead to delays and loss of potential CERs. In addition, there are many potential pitfalls when negotiating sales of CERs, particularly when signing forward sales agreements. A careless seller can potentially take on disastrous liabilities.

In general, it appears that the first projects to appear in any country require a significant amount of outside support. The real story is what happens after the CDM has proven itself. The shape of further investment flows will depend on the business and project landscape of the host country, the type of project, and the level of competition between CER buyers.

Up to now, significant amounts of capital have been available for credits from projects with a weak bilateral structure. This is particularly so in markets with restrictions that prevent unilateral projects, such as China and Malaysia, but this has also been seen in other markets.

It is certainly true that the marketplace is becoming more crowded for carbon buyers. The total of around $5 billion now available in carbon funds is chasing a current estimate of 86 million tonnes a year of CERs.

The weak bilateral project structure has inherent attractions for buyers, but it seems likely that buyers looking to operate in this area will be forced either to offer higher prices or a heavier loading of up-front payment. A third option would be to take a stronger role in the underlying project: by increasing the value brought
to the project, the overall cost of the emission reductions can still be kept relatively low. However, if it becomes necessary to offer such a commitment to every potential seller, buyers would probably have to reduce the size of their portfolio, thus significantly changing their risk profile.

An alternative way to maintain some distance from the underlying project is to hold back on making an offer until projects have reached a more mature stage of development – for instance, buying from unilateral projects in India when they are ready to come to market. However, the seller will then have far higher price expectations, so the difference the buyer can hope to achieve in comparison with, say, the price of EU allowances (EUAs), will become much smaller.

It therefore seems possible that investors who have the capability to offer full or partial project implementation as part of a package may find themselves in a stronger position as the CDM market becomes more competitive. It remains open to question who will be in the best position to take advantage of this situation.

Current investment patterns are perhaps a function of the relatively cheap emission reductions which are being achieved by some of the early-start projects. As projects become more capital-intensive and CER income becomes a smaller part of their revenue streams, different investment patterns are likely to emerge. For many future projects, carbon-based finance alone will not be sufficient to cover capital costs, so one possibility is that project financing, rather than carbon finance, will become the focal point for project development.

Regional development banks are starting to move. For example, the Asian Development Bank is setting up a major programme to promote and fund CDM projects. Hedge funds seem to be another strong potential source of investment: with an estimated $2 trillion under management, they dwarf the present size of carbon funds, and generally have a higher risk appetite than traditional financial institutions. Can more of this money be harnessed to bolster Asia’s infrastructure and industrial base? If these investors are prepared to take on the riskier portions of project financing, then other financial institutions will be more willing to make funds available for CDM projects. But one thing is for certain: this will not happen unless there are clear signals about a continued value for carbon assets after 2013.

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