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Minewatch Asia Pacific - Philippine Indigenous Peoples Links Briefing Paper, April 1999

The Destruction of Construction: a critique of the cement industry

by Roger Moody

*"Dad made the soil both rich and dark
and granddad built a wooden shack.
Developers were turned away...
Workmen dumped a mound of clay
But this old patch kept fighting back"*

[*This Blessed Plot*. The Albion Band, c. 1998]

The main use of cement is in construction and infrastructure, and cement factories have traditionally been located close to limestone quarries - limestone being the key ingredient of cement manufacture. However, depending on the quality of the cement required, other materials are also needed: shale, clay, gypsum (which provides an average 5% of input to cement manufacture) marble, iron ore, dolomite. In some areas, high alumina clays (a byproduct of bauxite mining) are much sought after (1). Rock containing sulphates is also employed in the manufacture of "super sulphate" cement. In brief, a wide variety of raw materials is employed in cement production, giving the final product different types of bulk, flexibility, durability and strength.

However, this presents the key problems of cement manufacture: the mining of the raw materials, and the fuelling of the kilns which burn - and concentrate or "purify" - the raw materials at very high temperatures, can both be highly detrimental to the environment and to the health of workers and residents in the neighbourhood of the plants.

Cement production carries with it a "triple jeopardy" (2). First, the raw materials contain toxics (sulphates, sulphides, pyrites, nitrogen) which should be neutralised and captured in the burning process. Second, mining them releases huge quantities of dust and creates spoil heaps (as with limestone quarries). These can directly threaten the lives of workers (through the contraction of pneumoconiosis, cancer, silicosis, and other lung diseases) and damage the quality of air for communities at large. Surrounding vegetation gets blanketed and stifled with dust and particulates. Water courses may be destroyed, blocked, or impaired (e.g., through increased alkalinity caused by excesses of lime). Third, the fuels commonly used in cement kilns (oil, wood, coal, industrial and domestic wastes) are often high in sulphur and nitrogen.

The world's big cement manufacturers have taken some steps to limit these damaging impacts: in many countries, they are compelled to install flue gas

desulphurisation, carry out "pre-calcination", reduce nitrous oxides (NOx) and capture particulates (stack emissions), to avoid the choking of entire local populations. There is an obvious cost to implementing such minimum standards. And, as with standards for other forms of mineral processing, they are not applied consistently or worldwide. Indeed, even in "advanced" countries, such as Britain, regulations on cement storage have recently been relaxed, as the industry argued successfully that continual monitoring of dust levels was too expensive and unnecessary.

Markets and multinationals

Not only do cement producers need easy access to large quantities of raw materials, fuel and cheap labour and local transportation. They also, of course, require profitable markets. While national cement manufacturers in Asia and Africa have tended to serve local needs (and therefore flourished when demand has fallen, as in the 1997-98 crisis among "tiger economies" in Asia) (3), a newer breed of multinational cement supplier has emerged. In its search for markets, these too are examining opportunities to site plants close to mines and fuel sources (in order to save on bulk transportation costs).

Increasingly, however, these global players are looking to benefit from economies of scale and to exploit the lower cost inputs of raw materials, fuel and labour available in the South - to the extent that they can seriously propose increasing cement output from Asia in order primarily to serve North American buyers. A clear strategy of take-over and amalgamation of smaller, regionally-based companies is emerging: as with recent bids by CEMEX of Mexico for shares in Philippine and Indonesian cement companies, and by HANSON in Malaysia. Here are two major corporations (one incorporated in a medium-income country but with open access to North American markets, the other serving both North American and European demand) which appear to be trying to benefit from the growing demand for cement in the "developed" world while exploiting opportunities for cost reduction in "lesser developed" states.

This appears to be a rapidly developing scenario - although it may change if state policies in Asia alter towards foreign takeovers and privatisation. On the one hand, the two Asia-Pacific countries with the biggest potential for "growth" in construction (China and India) cling to a cement industry based on small plants, in a large number of locations, under a myriad of managements (some of them state rather than private). The opportunity for foreign penetration here is currently limited.

On the other hand - in Indonesia and the Philippines - there seems to be a greater opportunity for intervention by overseas companies (Mexican, Japanese, North American and European) both to service pretended "national needs" and the hoped-for regional resurgence in construction, once demand for "public works" picks up again, and to profit from exports to rich countries, based on low-cost inputs and modest capital expenditures. An integrated "globalised" cement supplier clearly has its eye on a number of opportunities.

If existing cement plant and limestone mines are taken over by these corporate players, without their establishing much stronger environmental, safety and health standards, then local communities and workers will continue to be exploited, opportunities for national reconstruction (if and when they emerge) may be compromised, and the interests of manifestly corrupt players (such as Japanese construction companies) will be served, at the expense of locally-defined "development" .

Vertical control and growing scandals

In this context, it cannot be stressed too much that the uses of cement for small-scale, village-centred, development (homes, schools, health centres, local roads) are very limited in contrast to the opportunities provided by massive publicly-funded (unilaterally and multilaterally) infrastructure.

Not only are huge dams, bridges, four-lane highways, office blocks and ports a source of scandalously excess profits for some national elites (as recent revelations of corruption between politicians and the Japanese construction industry illustrate). It is clearly also in the self-seeking interests of multinational contractors bidding for mega projects to diversify "backwards" (or "upstream") into cement production, in order to control both the availability and the price of the raw materials. Over the past twenty years, a number of mining multinationals have themselves invested heavily in limestone quarries, gypsum, rock products and cement. In 1981, Rio Tinto (then RTZ), the world's biggest mining company, took over Tunnel Cement, which controlled some 20% of the lucrative British market. One of RTZ's ploys was to control the supply and price of cement for its expanded mine construction worldwide. (Rio Tinto sold out its cement interests six years later. (4))

Other big mining companies have increased vertical control and ownership over construction raw materials. The world's second biggest mining conglomerate, Anglo-American of South Africa, through its subsidiary MINORCO, owns major limestone and rock interests. HANSON is one of the world's most aggressive acquirers of quarry and construction materials (through ARC, and its bricks and cement division). MITSUBISHI of Japan - one of the world's biggest investors in mining - acquires nearly 20% of its group sales from supplying construction materials. PASAR in the Philippines also has important interests in gypsum, granulated slag and calcine.

Local versus global

This all contributes to an apparently classic scenario, where the "wicked" monopoly capitalists of the North are pitched against the outgunned entrepreneurs of the South. In fact, the picture is more complicated and problematic. It is most often the small cement plants which appear to pose the worst problems of pollution, while it is the bigger ones - which could soon be controlled by companies like Cemex and Blue Circle - that have the capacity and capital to install pollution-reduction technology. There is little doubt that these companies would leap at the chance of serving growing national markets in the South, where they existed, in addition to overseas ones. A key question is whether they can be compelled to follow the "best possible standards" even where national legislation does not compel them to do so.

This briefing paper cannot resolve this question - only point to its importance. International companies that invest in the cement industry could be forced to serve local interests, and they do have the potential to reduce contaminants which have unquestionably shortened the lives of thousands of children, women and men throughout the Asia-Pacific region. The "holocaust" of the construction industry, visited on inhabitants of the region has, as yet, barely been recorded.

But this would be at the expense of local control over quarries and what comes out

of them. And it in no way addresses the fundamental question of whether vast increases in the mining of limestone and processing of cement truly serve the interests of those who would choose small scale energy sources, as opposed to gargantuan hydroelectric dams. Improved housing constructed of cheap, locally available wood and thatch, as opposed to concrete encampments, and modestly improved highways and transport, as opposed to modern highways which sweep through their territory, attracting opportunists over whom they have little or no control.

Footnotes:

- 1) There has been stiff resistance to the mining of these clays in Jamaica, where local people have accused miners of undermining houses and gardens and caking roadways with sludge.
- 2) Typical to metallic mining and processing. The straightforward quarrying of aggregates and sand for construction usually only poses problems at the mining stage.
- 3) In Zambia, the state-owned Mindec Small Mines operates local gypsum mines intended to serve local needs
- 4) RTZ's other main reason for acquiring Tunnel Cement was to increase its British earnings in order to avoid taxation on overseas profits, which the company considered unfair.

A selection of articles on the cement industry and further copies of this paper are available on request from:

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