

Phoslock Environmental Technologies Ltd (ASX:PET)

| | |
|-------------------|---|
| Listed shares: | 547.2 million ord fp |
| 10.5¢ options: | 15.0 million, expiring 20 Dec 2019 |
| Total securities: | 562.2 million |
| Share price: | 71.0¢ as at 5 June 2019 |
| Market cap: | \$389m on listed shares, \$399m fully diluted |

Earnings exploding upwards

- It is only two weeks since my previous report but it is already hopelessly out of date. On 23 May PET announced treatment has commenced on a 34km² lake in Yunnan province, SW China, likely to be at the rate of at least \$1m per month. I understand that at that rate it would take about 5 years to complete the task, making it a \$60m project, and treatment could continue indefinitely thereafter to maintain pristine water quality.
 - That is just the start of these large projects in China. There are literally hundreds of large lakes that are in urgent need of treatment, not just in the SW but elsewhere in China, many considerably bigger than Xingyun. And now the *phoslock* product has the official imprimatur of no less a body than the Chinese Ministry of Water Resources.
 - Meanwhile, further information has come to hand on the scale of the remediation program planned in Florida. The four year US\$2.5b program (US\$625m p.a.) would include the removal of 100t of phosphorus annually. That would require an application of 10,000t of *phoslock* each year, thus generating annual revenue of more than \$30m for PET. I don't have a number that big in my forecasts, and indeed contracts have yet to be secured, but in anticipation of that I have increased International sales sharply.
 - My earnings estimates have increased by 50% this year, by 75% next year, by almost 100% in 2021 and more than that thereafter. EPS for this year and the next three years are now put at 1.5¢, 3.8¢, 7.4¢ and 11.5¢, equating to growth rates of 373%, 144%, 94% and 54%. My valuation is now well over \$2 per share.
 - The key thing is that PET has at last reached the long-awaited tipping point. Sales are now exploding upwards as more and more governments press the go button on long-delayed environmental action, including the removal of blue green algae. Application of *phoslock* is the only safe solution for the task and that is being recognised by experts globally.
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Phoslock Environmental Technologies Ltd (PET)

Share price 71.0c, current issued shares 547.2 mill, mkt cap \$389m

| December yrs | 17a | 18a | 19e | 20e | 21e | 22e |
|----------------------------|------|------|------|------|-------|-------|
| Profitability (\$m) | | | | | | |
| Sales revenue | 8.1 | 18.7 | 39.0 | 79.9 | 139.9 | 209.8 |
| Cost of sales | 3.9 | 9.2 | 19.1 | 39.2 | 68.5 | 102.8 |
| Gross profit | 4.3 | 9.5 | 19.9 | 40.8 | 71.3 | 107.0 |
| Margin | 52% | 51% | 51% | 51% | 51% | 51% |
| Interest income | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 |
| Other income | 0.4 | 0.7 | 0.4 | 0.4 | 0.4 | 0.4 |
| General expenses | 4.3 | 6.6 | 9.0 | 13.7 | 18.9 | 23.6 |
| EBITDA | 0.3 | 3.6 | 11.3 | 27.5 | 52.9 | 84.0 |
| Cost finance/opts | 2.0 | 3.5 | 0.5 | 0.0 | 0.0 | 0.0 |
| Depn/impairmt | 0.0 | 0.2 | 0.3 | 0.5 | 0.7 | 0.8 |
| Pretax profit | -1.7 | -0.1 | 10.5 | 27.0 | 52.3 | 83.1 |
| Income tax | 0.4 | 1.0 | 2.1 | 5.4 | 10.4 | 18.7 |
| Net profit excl. mi | -2.1 | -1.2 | 8.4 | 21.6 | 41.8 | 64.5 |
| EPS (c) | | | 1.5 | 3.8 | 7.4 | 11.5 |
| EPS (c) fully diluted | | | 1.6 | 3.8 | 7.4 | 11.5 |
| PE | | | 45.1 | 18.5 | 9.5 | 6.2 |
| Growth in dil EPS | | | 373% | 144% | 94% | 54% |
| DPS(c) declared for year | | | 0.0 | 0.0 | 3.7 | 5.7 |

| | | | | | | |
|----------------------------------|------|-------|-------|-------|-------|-------|
| Cash flow (\$m) | | | | | | |
| From operating activities | | | | | | |
| Sales receipts | 5.5 | 6.6 | 29.6 | 59.6 | 118.2 | 175.2 |
| Paymts to supplie | -8.6 | -16.0 | -27.1 | -52.9 | -88.2 | ##### |
| Other | -0.3 | -0.7 | -2.1 | -3.7 | -7.8 | -14.4 |
| Total | -3.4 | -10.1 | 0.5 | 3.1 | 22.3 | 32.4 |
| From investing activities | | | | | | |
| Capex | -1.2 | -0.6 | -1.5 | -1.5 | -1.7 | -1.8 |
| Other | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | -1.2 | -0.6 | -1.5 | -1.5 | -1.7 | -1.8 |
| From funding activities | | | | | | |
| Debt | -0.4 | -0.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| Equity | 11.7 | 8.8 | 3.5 | 0.0 | 0.0 | 0.0 |
| Dividends | 0.0 | 0.0 | 0.0 | 0.0 | -10.5 | -26.6 |
| Total | 11.3 | 8.5 | 3.5 | 0.0 | -10.5 | -26.6 |
| Cash position | | | | | | |
| Change from abov | 6.7 | -2.3 | 2.5 | 1.6 | 10.2 | 4.0 |
| Forex movements | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Closing | 7.4 | 4.9 | 7.4 | 9.0 | 19.1 | 23.1 |

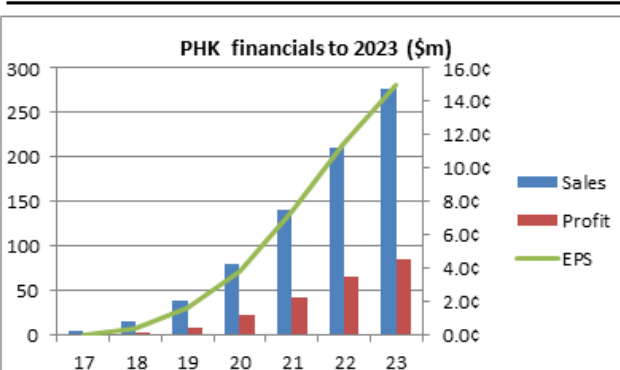
| | | | | | | |
|--------------------------------|-------|-------|-------|-------|-------|-------|
| Balance sheet (\$m) | | | | | | |
| Current assets | | | | | | |
| Cash | 7.0 | 4.9 | 7.4 | 9.0 | 19.1 | 23.1 |
| Receivables | 4.3 | 17.8 | 27.5 | 48.2 | 70.1 | 105.1 |
| Inventories | 1.5 | 2.4 | 3.8 | 7.8 | 13.7 | 20.6 |
| Other | 0.4 | 0.4 | 0.6 | 0.7 | 0.7 | 0.8 |
| Total | 13.3 | 25.5 | 39.3 | 65.6 | 103.7 | 149.6 |
| Non-current assets | | | | | | |
| Plant & equipmer | 1.3 | 1.5 | 2.6 | 3.6 | 4.6 | 5.6 |
| Other | 0.0 | 0.5 | 0.9 | 0.9 | 0.9 | 0.9 |
| Total | 1.3 | 2.0 | 3.5 | 4.5 | 5.5 | 6.4 |
| Current liabilities | | | | | | |
| Payables | 1.3 | 2.1 | 4.6 | 8.6 | 13.7 | 18.5 |
| Debt | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Provisions | 0.4 | 0.4 | 0.8 | 1.2 | 12.2 | 18.2 |
| Income tax | 0.4 | 0.9 | 1.1 | 1.1 | 1.1 | 1.1 |
| Total | 2.3 | 3.5 | 6.5 | 11.0 | 27.0 | 37.9 |
| Non-current liabilities | | | | | | |
| Debt | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Provisions | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 |
| Total | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 |
| Equity | | | | | | |
| Issued capital | 51.1 | 59.9 | 63.4 | 63.4 | 63.4 | 63.4 |
| Reserves | 0.7 | 6.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Retained earnings | -39.4 | -41.9 | -33.5 | -11.9 | 9.0 | 41.3 |
| Shareholder equi | 12.4 | 24.0 | 34.0 | 55.5 | 76.4 | 108.7 |

| | | | |
|---|-------|-------|------|
| Valuation (\$m) as at 31 December 2018 | | | |
| Discount rate | 5% | 10% | 15% |
| Operations | 3,126 | 1,313 | 645 |
| Future equity raisings net of buybacks | 3 | 3 | 3 |
| Cash 31 Dec 2018 | 5 | 5 | 5 |
| Debt 31 Dec 2018 | 0 | 0 | 0 |
| Total | 3,135 | 1,321 | 653 |
| \$ per share fully diluted | 5.58 | 2.35 | 1.16 |

Valuation based on DCF of future cash flows.
 NCF prior to dividend payments grows 10% pa beyond 2025.
 Per share data based on 562.2 million shares after exercise of options.
 Central valn of 235c equates to PEs of 153.5 and 61.2 on 2019 & 2020 ep

| | | | | | | |
|--|--------------|-------|-------|-------|-------|-------|
| Increase in valuation over time at a discount rate of 10% pa and revenue growth of 10% pa beyond 2025 | | | | | | |
| | As at 31 Dec | 2018 | 2019 | 2020 | 2021 | 2022 |
| Operations | | 1,313 | 1,497 | 1,705 | 1,855 | 2,010 |
| Future net equity raisings | | 3 | 0 | 0 | 0 | 0 |
| Cash | | 5 | 7 | 9 | 19 | 23 |
| Debt | | 0 | 0 | 0 | 0 | 0 |
| Total | | 1,321 | 1,504 | 1,714 | 1,874 | 2,033 |
| \$ per share fully diluted | | 2.35 | 2.68 | 3.05 | 3.33 | 3.62 |

| | | | | |
|--|--|----------------|-------|------|
| Valuation (\$/share) as at 31 Dec 2018 at a range of discount rates and of growth rates beyond 2025 | | | | |
| | | Discount rates | | |
| | | 5% | 10% | 15% |
| Growth rate 5% pa | | 5% | 3.24 | 1.54 |
| Growth rate 10% pa | | 10% | 5.58 | 2.35 |
| Growth rate 15% pa | | 15% | 10.38 | 3.92 |



Company description
 Phoslock is an environmental company specialising in engineering solutions and water treatment products to remediate impaired lakes, rivers, canals and drinking water reservoirs. Although headquartered in Sydney its key focus is in China where its factory and engineering staff are based.

Its main product is PHOSLOCK, a clay-based product containing lanthanum which inhibits the formation of blue green algae by binding with phosphorus. It is exported from China to around the world. Other products such as zeolites (to reduce nitrogen) and certain bacteria are important in China.

Most revenue is derived in China which offers substantial growth potential given its severe water problems. But sales elsewhere are also growing rapidly. In all markets, an increasing proportion of revenue is recurring.

China

Xingyun Lake

On 23 May PET announced that treatment had commenced on a heavily polluted 34km² lake in Yunnan province, SW China, following a four day trial which resulted in a 75% reduction of phosphorus in the area treated. While not disclosed in the announcement I understand that the lake is Xingyun, located some 50 km south of Kunming, the provincial capital. Its average depth is 5.3m.

An initial order for \$1m of *phoslock* was received and this is now being applied on one section of the lake over a period of one month. Here [<https://youtube/LIrgR5gEDtQ>] is a link to a video of the work embedded in PET's website. Authorities will review the results in early June, when it is anticipated approval will be given to apply similar monthly dosages thereafter.

I understand that at \$1m per month it would take five years to complete the job, making this a \$60m project. Funding has apparently been secured and importantly, normal western payment terms (i.e. 30 days) have been approved, rather than the 120 days which had previously been PET's lot in China. There is a possibility that the rate of application could be accelerated. I also understand that the continuing inflow of phosphorus would require repeat dosages to maintain pristine water quality, so that in fact revenues of at least \$1m per month could continue indefinitely.

Importantly, this contract was not included in the guidance given earlier for 2019 revenue.

Other lakes in SW China

The announcement went on to say that there are nine very large lakes in the SW China Lakes Project Area, all with major water pollution problems, and that the provincial and central Chinese governments are urgently seeking to restore the water quality of these lakes to boost tourist and economic development.

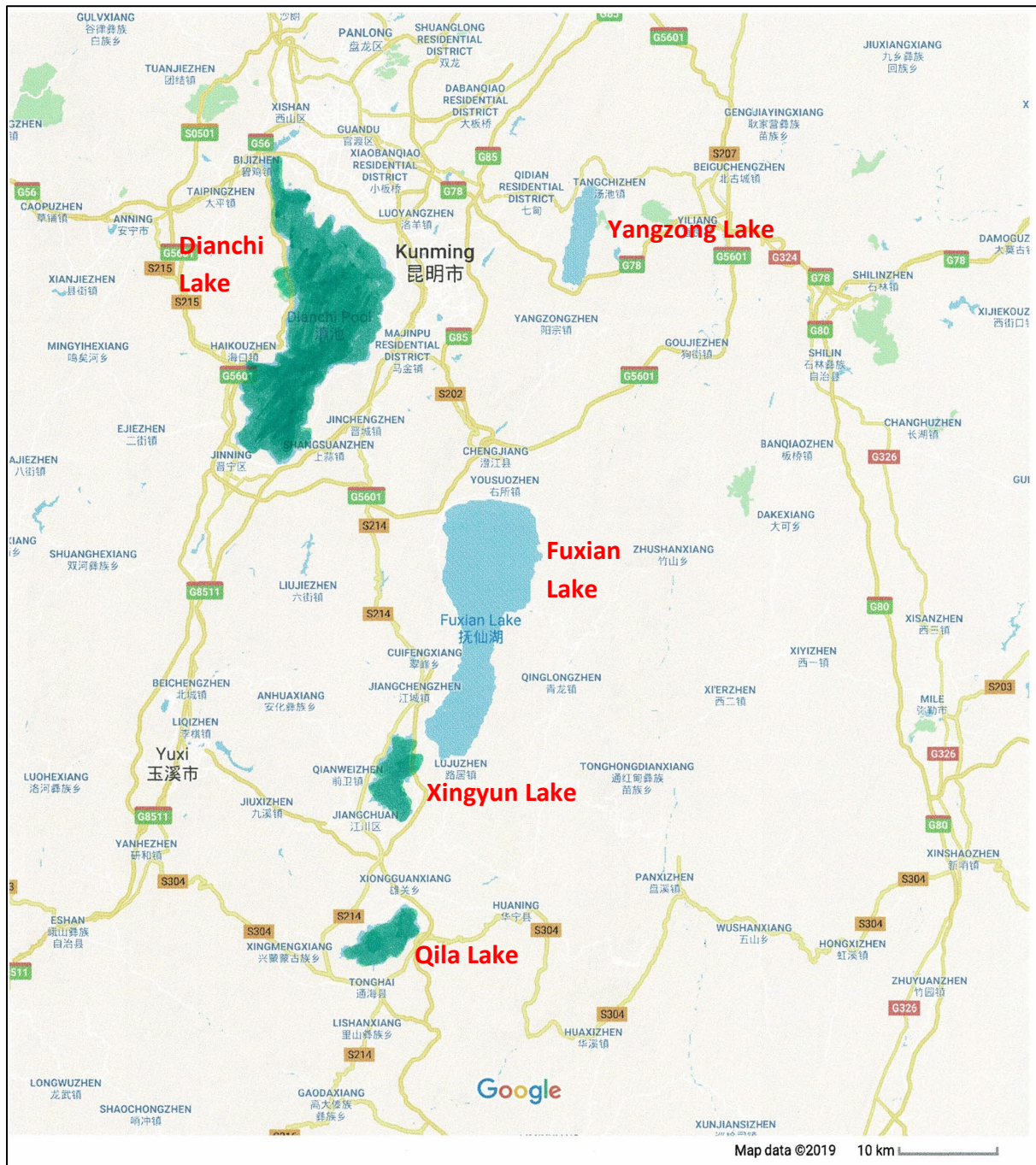
Using Google Maps I have identified a number of large lakes in the Yunnan province, and by their green colouration the ones that are most heavily polluted include:

- Lake Dianchi (size 298km², average depth 4.4m) located adjacent to and west of Kunming.
- Lake Qila (size 37km², average depth 4m) located some 10km south of Xingyun.
- Lake Yilong (size 32km², average depth 4m) located some 50km south of Lake Qila.

Most of these are shown in Figure 1, which is taken from Google Maps and edited by colouring the worst lakes green. Lake Fuxian (212km²) and Lake Yangzong (31km²) appear to be OK at first glance because they are blue in colour. This is probably because they are much deeper than the other lakes, at 90m and 19m, respectively, and are more remote.

Lake Dianchi is almost nine times larger than Lake Xingyun. To treat that lake over a five year period would generate annual revenue of over \$100m.

Figure 1: SW lakes, Yunnan province



Source: Google Maps

Elsewhere in China

The SW Lakes area is a prime target for PET, and an easier target because some of the non-executive directors of PET have spent many years in the province working on solving water problems and know the officials within the water authorities very well. In addition, during the Chinese Premier's visit to the region last year he asked the government officials to make the area and lakes "beautiful" as this would be a major tourist region. With this came significant central government funding.

But China is vast and has many such lakes; in fact, many much larger ones. Lake Taihu 50km inland from Shanghai, for example, is 2,250 km² in size with an average depth of 2m, and is extremely heavily polluted. Interestingly PET's Changxing factory is located near the southwestern shore of the lake.

There are numerous other large lakes within 500km of Shanghai on the delta plain of the Yangtze River, many of which are over 500km², and most of them showing that sickly green colour denoting the presence of blue-green algae. I would especially highlight Lake Poyang of 3,207 km², Lake Chaohu of 760km² and Lake Gaoyou of 675km². Of course, the Yangtze River itself is very heavily polluted.

In summary, PET should enjoy decades of rapidly growing annual revenues in China, increasingly of a recurring nature.

Accreditation

On 3 June PET announced that its *phoslock* product has secured official recognition by the Chinese Ministry of Water Resources. It is now a recognised product "of advanced practical technology in water conservation and remediation." This is seen by PET as an important milestone, as it will facilitate acceptance of its use by water officials throughout the country. The *phoslock* product will now become part of domestic and international promotional activities arranged by the Ministry in China, Hong Kong, Macau and certain other countries linked to China through the One Belt One Road initiative.

Florida wetlands

Background

Wetlands are a dominant feature in Florida. In 1996 an estimated 46,200km² of wetlands occupied 29% of the State, including the Everglades National Park - a 20,200km² wetlands preserve on the southern tip of the State and bounded by Palm Beach, Fort Lauderdale and Miami on the eastern seaboard. Like a huge grassy slow-moving river, the wetlands are made up of coastal mangroves, sawgrass marshes and pine flatwoods that are home to hundreds of animal species.

The wetlands contain a myriad of lakes, rivers, canals and other water bodies.

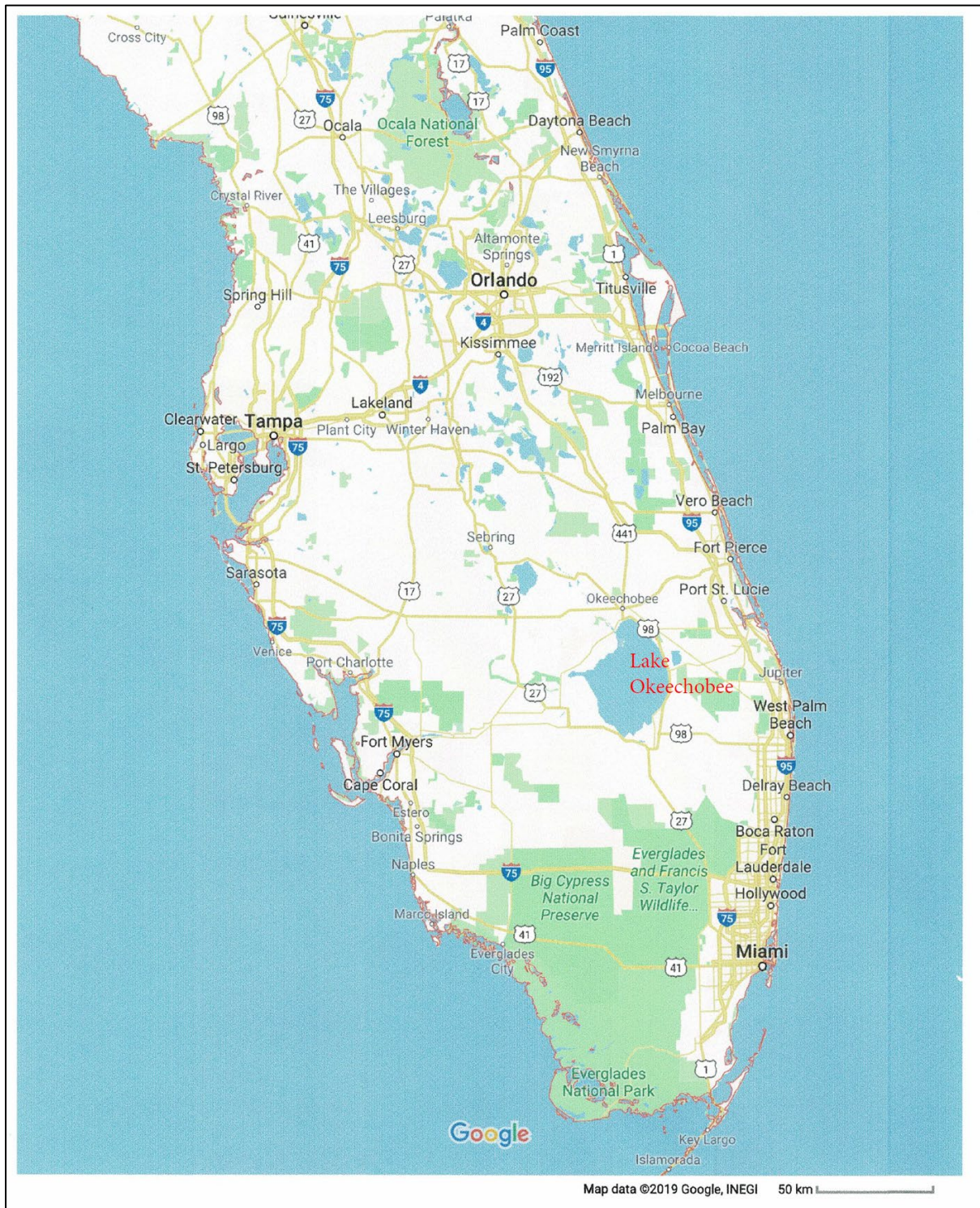
Degraded and polluted

Decades of political inaction have pushed the wetlands down the path of entropy and potential collapse. The wetlands area is now less than half its original size due to drainage of land for agricultural purposes such as growing sugar cane, and encroaching development. Water inflow into the Everglades National Park from Lake Okeechobee has been much reduced by diversions into the Gulf of Mexico by the Caloosahatchee Canal and into the Atlantic Ocean by the St. Lucie Canal, and is partly blocked by highways cutting across from Miami to the Gulf. Nutrient pollution is at a high level and the region is now riddled by invasive species of plants and animals.

One of the problems, among the many, is increasing levels of phosphorus in the water bodies. A glance at satellite images courtesy of Google Maps reveals some that are green in colour indicating the presence of blue-green algae. Two that appear to be particularly affected are:

- Lake Apopka of 125km², the fourth largest in Florida, and located 24km northwest of Orlando, and mostly within Orange County. It was Florida's most polluted lake but has improved in recent years after conversion of farmland and after water management initiatives. It still looks bad though.
- Lake Okeechobee of 1,890km², the biggest lake in Florida. Only 2.7m deep, it is crucial to the health of the wetlands given its location north of the Everglades National Park, because most of the park's water flow comes from the lake. The Kissimmee River to the north is the lake's primary source of water. The lake is now partly bounded by sugar cane farms developed in previous decades, especially on the Everglades Agricultural Area, the run-off from which is laden with phosphorus. But some 20% of the phosphorus in the lake comes from the river. Blue green algal blooms are a persistent problem. In July 2016 the Federal Government denied Governor Rick Scott's request for Federal Disaster Aid following a severe outbreak, finding that the lake's water quality problem was a State issue.

Figure 2: The Florida Wetlands



Source: Google Maps

The algal problem for the Everglades National Park had been alleviated in the 1980s and 1990s by reducing the usage of phosphorus-based fertilisers, and by extensive plantings of native plant species between the farmland and the Everglades. But this buffer zone has become saturated with phosphorus, causing the element to once again invade the Everglades. So again, blue-green algae blooms are becoming a major problem there too.

The solution

For too many years not enough was done to halt the deterioration of the wetlands, partly due to political wrangling. But in January 2019, a new State Governor was elected in the form of Ron DeSantis. He has wasted no time in outlining a plan to spend US\$2.5b over his four year term to rescue the wetlands, to among other things increase the flow of water, and to reduce the phosphorus content.

The January press release stated that the program aims to remove 200,000lbs (i.e. 100t) of phosphorus annually. Given that it takes about 100t of *phoslock* to remove 1t of phosphorus, a quick calculation shows that annual use of *phoslock* could be 10,000t, generating annual revenue of more than \$30m for PET.

Contracts pending

As mentioned at the AGM, during April PET trialled a 12t application of *phoslock* on a waterbody between Orlando and Tampa. The trial was highly successful and from that one would assume that contracts involving the application of hundreds of tonnes are pending.

Longer term, annual sales of tens of millions of dollars are entirely possible in Florida.

Production

Capacity being doubled

In the light of recent announcements PET is doubling annual *phoslock* production capacity at its plant in Changxing to 12,000t at a cost of less than \$1m, through bringing online its existing second production line. The work will be completed within two months. At some \$3,000 per tonne, sales of 12,000t would equate to annual revenue of \$36m.

The company is also securing additional warehousing facilities at the Changxing industrial park to store higher volumes of bentonite, lanthanum chloride and finished product.

Further potential

The factory cost some \$1.5m or so to equip in 2017 over a period of some months, and the floor space is sufficient to add more production lines as required, up to a capacity of some 45,000t (sale of which would equate to annual revenues of \$135m).

Beyond that, there will be no difficulty in securing new factory space to further increase production capacity as required.

Raw materials

There should be no difficulty securing increased volumes of these raw materials. They are in plentiful supply. *Phoslock* contains some 95% bentonite clay and 5% lanthanum chloride, which in turn comprises 40% low-purity lanthanum and 60% chloride. Low-purity lanthanum is cheap and plentiful, often comprising a quarter of rare earth ores being processed.

The current trade war between the US and China should have no impact on the supply of raw materials; nor indeed on the sale of *phoslock* throughout the world including the US because there are no directly comparable products available.

Financial projections

Sales revenue

I have sharply increased my sales revenue projections as shown in Figure 2.

Figure 3: Sales revenue projections and revisions

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|------------------------------------|------|------|-------|-------|-------|-------|
| <i>Sales revenue projections</i> | | | | | | |
| China | 32.0 | 65.9 | 115.4 | 173.0 | 228.4 | 285.5 |
| International | 7.0 | 14.0 | 24.5 | 36.8 | 48.5 | 60.6 |
| Total | 39.0 | 79.9 | 139.9 | 209.8 | 276.9 | 346.2 |
| <i>Previous (May 2019)</i> | | | | | | |
| China | 25.0 | 40.0 | 60.0 | 84.0 | 109.2 | 136.5 |
| International | 5.0 | 8.0 | 11.2 | 14.6 | 18.2 | 21.8 |
| Total | 30.0 | 48.0 | 71.2 | 98.6 | 127.4 | 158.3 |
| <i>Revision</i> | | | | | | |
| Total | +30% | +67% | +96% | +113% | +117% | +119% |
| <i>Annual sales revenue growth</i> | | | | | | |
| China | 103% | 106% | 75% | 50% | 32% | 25% |
| International | 139% | 100% | 75% | 50% | 32% | 25% |
| Average | 109% | 105% | 75% | 50% | 32% | 25% |
| <i>Previous (May 2019)</i> | | | | | | |
| China | 59% | 60% | 50% | 40% | 30% | 25% |
| International | 71% | 60% | 40% | 30% | 25% | 20% |
| Average | 61% | 60% | 48% | 38% | 29% | 24% |

Source: My spreadsheet

The estimate for 2019 was previously constrained by revenue guidance of \$27 to \$30m (and this included revenue other than sales revenue). I had allowed for \$30m of sales revenues (excluding other revenue). However this did not allow for the new work awarded in SW China and in Florida, which has occurred subsequently. My new estimate is \$39m.

For China, I have derived the figures from estimates for the SW lakes, plus one line for other areas, as seen in Figure 3. The numbers don't quite match, because they are just a guide.

Figure 4: Analysis of China revenue projections

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|-----------------------|------|------|------|------|------|------|
| Dianchi | - | 20 | 45 | 60 | 60 | 60 |
| Qilu | - | - | 12 | 12 | 12 | 12 |
| Xingyun | 7 | 12 | 12 | 12 | 12 | 12 |
| Yilong | - | - | - | 12 | 12 | 12 |
| Subtotal for SW lakes | 7 | 32 | 69 | 96 | 96 | 96 |
| Elsewhere in China | 25 | 34 | 47 | 76 | 129 | 193 |
| Total | 32 | 66 | 116 | 172 | 225 | 289 |

Source: My spreadsheet

Profitability

I have continued with my assumption that gross profit margin, net of the cost of sales, will be 51% hereafter.

My projections for general expenses have increased sharply, as would be appropriate given the upwards revision in sales. My previous estimates were for \$8m in 2019 and thereafter increasing at \$1m per year. I now allow \$9m in 2019. Thereafter, I allow for much more significant increases by tying the percentage increase each year to half the growth rate of revenues. For example, 2020 is now at \$13.7m instead of \$9m.

The result of all of the above is that my earnings estimates have been increased by 50% in 2019, by 75% in 2020 and by over 100% thereafter.

Figure 5: Earnings projections and revisions

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|-----------------------------|------|------|------|-------|-------|-------|
| <i>EBITDA</i> | | | | | | |
| Current projection | 11.3 | 27.5 | 52.9 | 83.8 | 114.3 | 146.4 |
| Previous (May 2019) | 7.7 | 15.9 | 26.8 | 39.8 | 53.5 | 68.3 |
| Revision | +47% | +73% | +98% | +111% | +114% | +114% |
| <i>Net profit after tax</i> | | | | | | |
| Current projection | 8.4 | 21.8 | 42.1 | 64.7 | 84.8 | 108.5 |
| Previous (May 2019) | 5.5 | 12.5 | 21.2 | 31.5 | 42.3 | 50.5 |
| Revision | +54% | +74% | +99% | +105% | +100% | +115% |
| <i>Diluted EPS</i> | | | | | | |
| Current projection | 1.6 | 3.9 | 7.5 | 11.5 | 15.1 | 19.3 |
| Previous (May 2019) | 1.1 | 2.2 | 3.8 | 5.6 | 7.5 | 9.0 |
| Revision | +50% | +74% | +99% | +105% | +100% | +115% |

Source: My spreadsheet

Dividends are now projected to commence in 2021, a year earlier than my previous estimate, because accumulated losses will be eliminated earlier. I now allow for a 50% payout ratio (previously 60%) in order to maintain cash levels at comfortable levels in the face of sharply increased working capital requirements.

Financial position

I can see why Phoslock management was able to persuade their Chinese customers in Yunnan to allow the it western-style payment terms of 30 days rather than the up to 120 days set elsewhere in China to-date, because the enormous growth in revenues would have otherwise placed an unsustainable burden on the company's cash position, and it would have had to borrow to cover the shortfall. As it is, after making certain adjustments to the payment terms, Phoslock's cash position will still be relatively low through this growth phase, but at least borrowings will probably not be necessary outside of very short term pressures that no doubt will occur from time to time.

Apart from working capital items, Phoslock's capital expenditures will have to reflect ongoing expansion of production capacity, albeit they will not be substantial numbers. I have trebled them to \$1.5m in this year and in 2020, thereafter increasing at 10% pa. It should be noted that allowing for an average sales price of \$3,000/t, the revenue estimate of \$346m for 2024 would imply *phoslock* sales increasing to perhaps 90,000t by that year, assuming that say 25% of sales were due to other products and services.

So my estimates are now that the company will have a closing cash position of \$7m in 2019, thereafter increasing to \$9m in 2020, to \$19m in 2021, etc.

There is potential to bring forward payments to shareholders by way of a capital return but I do not include it in my main projections. To make it worthwhile the company would possibly have to borrow.

NEWING RESEARCH

Valuation

The DCF-based valuation is now sitting at \$2.35 as at 31 December 2018, up from 98¢ in my previous research report. Switching to 31 December 2019 would increase it to \$2.68, and I will be doing that in a few months. More detail is provided on page 2 of this report.

I wonder again whether my long-held assumption, that the annual growth rate of net cash flow prior to dividends for the years beyond those modelled (i.e. beyond 2025) should be increased. I have long used the assumption of 10% as my central case, but have always provided the valuation at a 15% growth rate as an upside case. That is now sitting at \$3.92 taken from the end of 2018, and \$4.59 if taken from the end of 2019. Perhaps the most reasonable case is take some point midway between 10% and 15%, and midway between end-2018 and end-2019. On that basis, a 12.5% long term growth rate would deliver a valuation of \$3.23 as at 30 June.

At the end of the day, of course, such valuations are interesting but perhaps somewhat academic. They are more useful when comparing like companies.

To complete the picture, it can be seen in Figure 5 that PEs and especially PEG ratios are low at the current share price, suggesting that the shares are a bargain (always assuming that my EPS projections are in the ballpark).

Using my long term valuation as a proxy for the share price suggests, to me anyway, that the share price should be closer to those valuations than where it is currently, but certainly over \$1.00, again assuming that my projections are OK. But I dare say the market will want more evidence that I am in the ballpark before getting too excited. Good announcements in coming weeks regarding China and/or Florida should do the trick.

Figure 6: Valuation metrics based on EPS data

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--|------|------|------|------|------|------|
| Earnings growth | 373% | 144% | 94% | 54% | 31% | 28% |
| PE at 45¢ | 45.1 | 18.5 | 9.5 | 6.2 | 4.7 | 3.7 |
| PEG | 0.6 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 |
| <i>PEs based on shares priced at valuation</i> | | | | | | |
| at 2018 valn \$2.35 | 149 | 61 | 32 | 20 | | |
| at 2019 valn \$2.68 | | 70 | 36 | 23 | 18 | |
| at 2020 valn \$3.05 | | | 41 | 27 | 20 | 16 |
| at 2021 valn \$3.33 | | | | 29 | 22 | 17 |

Source: My spreadsheet

Corporate

More options exercised

I note that a further 5.2 million of the 10.5¢ employee options were exercised on 28 May, leaving 14.95 million remaining to be exercised before their expiry on 20 December 2019. No doubt this move was motivated by the much higher share price, allowing employees to realise some cash for their personal requirements yet still retaining the bulk of their increased holding. Issue of the new shares made no difference to my numbers because I have long allowed for all of them to be exercised prior to expiry, but I suppose the \$0.5m cash injected earlier into the company will not go astray.

ASX indices

PET shares were admitted to the ASX All Ordinaries Index on 18 March. The index comprises the top 500 listed companies. This achievement allowed more institutional investors to consider investing in the stock.

Perhaps PET will now be admitted to higher ranked indices earlier than I had envisaged. I note that at present to get into the top 300 would require a market cap of about \$380m, while for the top 200 it is \$870m.

Another change of name might be good

The company changed its name less than a year ago from Phoslock Water Solutions Ltd to Phoslock Environmental Technologies Ltd. That was a good decision, but it seems to me that there is a natural confusion in having the company named after its main product, and the change of name did not solve that problem.

In this report I resort largely to using PET instead of Phoslock for the company's name, and that is a common thing amongst analysts (even though it refers to the shares rather than the company name). As for the product I have chosen to italicise it as '*phoslock*' to distinguish it from the company's name. I note Phoslock often resorts to using capital letters for the product, as in PHOSLOCK. Not ideal either.

I would hate for the company to change its name to PET Ltd. Perhaps it should be Phoscom Environmental Technologies Ltd to retain the existing PET ticker. That's one for the directors to think about.

NEWING RESEARCH

Disclaimer

This analysis is cursory in nature and is not intended to be relied upon by third parties, who should make their own enquiries. The report does not contain investment advice.

Any views expressed in this report are purely my own unless otherwise indicated.

Disclosure

I have not received any remuneration from any person for this report.

Associated entities own 6.1 million shares in PET at the time of writing.

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