

Year 12 Visual Text Study – Gattaca
Social, Political, and Historical Setting – Further Reading

Give geo- and genetic engineering a fair trial

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Frontier science must not be feared, but cautiously embraced

IN A city in eastern Brazil, scientists are preparing to release millions of genetically modified mosquitoes into the wild. If the trial works, the people of Juazeiro will have GM technology to thank for keeping them safe from dengue fever (see "Swarm troopers: Mutant armies waging war in the wild").

Meanwhile, in Bristol, UK, scientists are preparing one of the first experiments to figure out how to engineer the climate. If it works, we will be a step closer to developing a last-ditch option to mitigate some of the worst effects of climate change (see "Geoengineering trials get under way").

At first glance these tests have little in common, but dig a little deeper and parallels start to emerge. Both trials reveal our uneasy relationship with our control of nature.

The geoengineering experiment, in itself an innocuous effort to test one proposed system for pumping cooling particles into the atmosphere, has already attracted the ire of the ETC Group, a Canadian NGO that is a leading opponent of geoengineering.

The release of GM mosquitoes into the wild has so far attracted relatively little protest, following encouraging results from a field trial in the Cayman Islands. But if and when similar releases are planned in Europe - perhaps as dengue fever spreads northwards as the climate warms - opponents of GM technology will surely mount bigger campaigns to halt the release on the basis of some ill-defined risk.

These issues should certainly be debated as widely as possible, but demands for bans and moratoriums on trials are not the way forward. It may sound eminently reasonable to sideline tests until we know more, but all too often that is a smokescreen for Luddism. To be in a position to weigh up the risks and benefits of a technology, carefully designed experiments are sacrosanct.

At the same time, the risks have to be constantly reassessed and revised in the light of what experiments tell us. More than three decades ago, top scientists in the emerging field of genetic engineering gathered in Asilomar, California, to thrash out guidelines for regulating their work. These have served science and society very well so far. Last year, Asilomar hosted a similar meeting for geoengineering. It is important that scientists, who hold a diverse range of views, can weigh them in a measured way before the wider debate becomes politicised and polarised into scientists versus pressure groups.

With climate engineering, the benefits of carrying out small trials far outweigh the risks. At the very least, geoengineering experiments will stimulate public debate, perhaps even galvanising support for conventional emissions reductions. At most, they will provide key insights into desperate measures that could be taken in desperate times.

A similar argument applies to the use of GM mosquitoes. Dengue fever sickens some 50 million people every year and kills 40,000. In the face of this toll the risk of releasing millions of GM insects pales into insignificance.

In both experiments, the usual caveats apply - there has to be openness, consultation and appraisal - but the critics must realise that halting an experiment can be risky too. A failure to use technology can effectively harm, maim and kill just as surely as its misuse.