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When Helen Zille wrote this story for *Frontline* in 1982 she was a young mother (if not perhaps still an about-to-be-mother) and a freelance journalist.

Now her name is household property, as Leader of the Opposition and Mayor of Cape Town. Which gives the story current relevance on two counts. First, it is oddly humanising to be reminded that Her Honour has a 26-year history of wrestling with the kind of causes that, when she espouses them now, elicit cries of "vote-catching!" and "opportunism!" Second, it is more than somewhat sobering to recall that nearly all of us, reading these ideas about the relief of third-world discomfords, would at the time have taken it for granted that such discomfords would be ancient history by 2008. Hm

Being nice to a small planet

*The quest to keep the earth in proper trim bumps into an amazing variety of different issues, as **Helen Zille** discovers. There are the bizarre byways, the shortcomings of ivory-tower philosophising, and some heavy political debates...*

If he could, Arnold Abramovitz would take one of those signs off the lavatory door and pin it onto this planet: “Please leave this place in the condition you would like to find it.” He is so concerned about this condition that three years ago he co-founded an organisation to do something about it. He now holds the title of treasurer, and the last annual financial report he produced looked like this: Outgoings: R350 Incomings: R63 Shortfall: R287.

At this point most other organisations would take the rational decision to pack it in. But not the Appropriate Technology group at the University of Cape Town. This small group, with a membership ranging from students to pensioners, engineers to sociologists, are as busy as ever looking for ways to leave

this corner of the earth more capable of supporting life than they found it. They are concerned with finding simple practical ways of giving the people living in poverty-stricken rural areas “a leg up rather than a hand out,” to enable them to regain a sense of purpose and control over their own lives and the fate of their communities.

Appropriate technology enthusiasts are also concerned about making affluent city dwellers realise that AT begins in their high-tech homes – when they buy milk in glass bottles or cardboard containers rather than plastic bottles; when they walk, ride a bicycle, catch a train or a bus rather than travel by car; and when they forsake the electric toothbrush in favour of the old muscle power method.

All these things are what appropriate technology is about, says Arnold Abramovitz, who spends his time editing the lively AT newsletter and lecturing in psychology.

Technology, he says, is simply about finding ways and means of fulfilling our needs (which range from having a full tummy to that undefinable luxury called “self actualisation”). In most “developed” countries and cities today this means large-scale, capital-intensive, conveyor-belt technology that has grown way beyond the human scale, destroying initiative, jobs and the environment.

Appropriate technology aims at bringing our methods of fulfilling our needs back to a human scale. It is based on Fritz “Small is beautiful” Schumacher’s belief that human beings have a deeply coded genetic need for satisfying, fulfilling work. AT involves contact and cooperation between individuals in a community to make the best use of what is available in ways that will preserve the integrity, stability and beauty of the environment.

Appropriate technology is not restricted to inventions that made their appearance at about the same time as the wheel. Modern technology can be appropriate, just as long as it meets the needs of a community and the environment in particular circumstances.

Like what for instance?

Some of the ideas are pretty bizarre. Take the skyscraper. (Not skyscraper.

SKYCRAPPER.) A skyscraper is exactly what it says it is and is described with due reverence in one of the AT newsletters as “an above-ground aerobic and solar assisted composting toilet” or a “loo that flushes by the sun.”

This invention, attributed to an American called Douglas Elley, is an “out-house elevated two or three meters above ground, where the human waste is caught on a wire mesh and exposed to sunlight to aid decomposition.”

Mr Elley is quoted waxing lyrical about “the pleasing and aesthetic moments of meditative contemplation in a small sunlit room perched above a backyard or garden view.”

Be that as it may, no unconventional perch with a view is going to help communities that have been physically and psychologically shattered by land shortages and migrant labour to organise themselves and improve their lives. That is why AT does not only go for things like skyscrapers and solar powered air conditioners. It is not only for ingenious, impractical academics and cranks with vegetarian dogs.

It also tries to tackle some of the most severe problems in the rural areas where people have been living with an energy crisis for years – a shortage of firewood. No number of Koebergs or Sasols [power stations] are likely to solve this problem. By the end of the century a mere 25% of the country’s population are likely to be hooked onto Eskom’s electricity grid – the same proportion that are hooked on today. For most of the rest each day will bring the renewed scramble for firewood to keep warm and cook meals.

That is why the search for alternative fuel sources, and ways to preserve firewood, are two of AT’s priorities. There’s the sun, for a start. But how can it be harnessed to provide some of the energy needs of rural communities without the latest ultra-modern solar architecture featuring sloping, translucent ceilings and high-tech water reticulation systems?

One of those thick, black plastic bags would be a good start. According to Arnold, if they are filled with water in the morning and put on the roof of the home, by midday the water will have reached a temperature of 50 degrees C, which is quite hot enough for most domestic purposes. The water will even heat up on a cold day – as long as the sky is clear, he says.

BEING NICE TO A SMALL PLANET

Then there is the mud stove, which is (obviously) a stove made from mud, with holes for the fire and cooking pots and tunnels to channel the heat. Mud stoves run on firewood, but are designed to overcome the biggest problem of the open fire: the fact that 99 percent of its heat goes up in smoke to heat the universe leaving one percent for the pot. Mud stoves have been known to save up to half the amount of firewood needed to cook a meal.

Now it's all very well for people who can get popped-up toast at the push of a lever and hot water at the twist of a tap to drive out to a rural village and tell the women and old folk who make up the bulk of the population there to put water-filled plastic bags on the roofs of their huts. Many of these people wouldn't be where they are anyway if it were not for the pass laws. In this context it is very easy to regard AT as a first world cast-off which helps to keep the rest of the people in subservience by making their conditions just bearable.

The point, says Arnold, is that AT must be placed firmly within its social and political context – without losing sight of the fact that starvation will damage a young brain long before its owner can be taught self sufficiency. AT must be a supplement to, not a substitute for, political and social action.

This is a difficult balance to achieve, and one fraught with all the perennial South African pitfalls – like paternalism. Many traditional technologies are highly effective and appropriate for conditions to which most urban intellectuals have had little exposure. For a start, who can say what's appropriate to the needs of a community?

Arnold thought he could, until he became the laughing stock of the Nyanga squatters last year. Here, he thought, was a chance to get AT out of the ivory tower and relevantly into the lives of people denied even the most rudimentary shelter in the middle of a wet Cape winter. So he collected money to buy 110 survival bags, which can best be described as bright orange sleeping bags made from thick plastic. When lined with blankets or newspapers they prevent excessive loss of body heat and can be used to keep dry in the rain.

Within a week most of the bags were gone – confiscated by the police. So Arnold bought a new lot, repeated his demonstration, and emphasised that no one had the right to remove the bags.

The same pattern repeated itself, and on further investigation, Arnold found the reason: the people did not consider that plastic bags which could be transformed into sleeping bags or overalls were appropriate to their needs. They converted them into group shelters – and would have preferred plastic sheeting to do this anyway. When the police went on their regular rounds, they simply broke down the shelters and confiscated the bags. At this point Arnold retreated to his role as a psychologist and tried to figure out why he had been so wrong about what the people needed. After all, according to all the textbooks, people’s need of warmth and shelter is matched only by their need for food, and survival bags used as waterproof overalls or sleeping bags give far more warmth and protection than flimsy windblown structures.

Yet as he later found out, the people of Nyanga Bush were not prepared to walk around looking ridiculous even if they were living close to the edge of survival. Nor were they prepared to use the survival bags as individual sleeping bags – it cut them off from other people and from the fire, which was highly prized, over and above its calorific value.

“There is room for research into appropriate protective clothing which takes both technical and cultural criteria into account,” concludes Arnold soberly. “The evictees of Nyanga East have had a good deal to teach us about survival.”

There are other organisations in South Africa that have been learning a good deal about survival for many years and are widely involved in implementing AT successfully in the rural areas where it is most needed.

Perhaps the most important is the Environmental Development Agency (EDA), whose milestone publication, “People’s Workbook”, is a treasure chest of alternative technology for rural South Africa based on intimate knowledge of the way rural communities live, the materials available to them, and the constraints that control their lives. Subtitled “Working together to change your community,” this book has scores of step-by-step instructions and illustrations on how to do just about everything from digging a well to delivering a baby. More than anything else, this book can convince the skeptic that AT does not merely reside in the realm of vacuous idealism, but that it is viable as well.

Yet, ironically, EDA – the organisation that is probably doing most to imple-

ment AT on the ground – is one of the most outspoken about its limitations. The argument is simple: The problems of the rural poor have nothing to do with lack of ability and resourcefulness. That is why AT on its own cannot solve their problems.

The solution lies much deeper: in tackling the unequal distribution of land and resources, the pass laws and migrant labour.

Others, like UCT economist, Graeme Bloch, accept that appropriate technology has a role, but believe that the very latest in technology should also be geared to meet the needs of the majority of South Africans in both urban and rural areas rather than, say, producing a range of 20 different luxury cars for the affluent few.

He, like many other South Africans, will believe in capitalism's benign "invisible hand" when he sees it. Until then he will go on the available evidence which is, overwhelmingly, that technology in South Africa is primarily geared to increasing the profits of big multi-national and monopoly corporations that dominate the South African economy while most people battle to scratch out a living from depleted soil with advanced technology doing little to help solve the problems it helped create.

Changing this situation will take more than solar energy - unless it is possible for economies controlled by a few, involving large scale production and high capitalisation, to make sense in a context wider than the narrow limits of short term profit.

Schumacher wasn't too optimistic about this possibility and told this story to make his point: A surgeon, an architect and an economist (probably of the "invisible hand" variety) all found themselves in the same compartment of a train. They began discussing whose was the oldest profession. After a totally inconclusive debate, the surgeon finally said: "Look here, come off it. There's no doubt. If you know Genesis, the Lord took a rib out of Adam to make Eve and that was a surgical operation." Unabashed, the architect replied: "Well, long before he did this He had created the whole universe out of chaos: that was an architectural job." To which the economist merely replied: "And who created the chaos?"