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MATERIAL FLOWS AND MORAL POSITIONS*

ABSTRACT - A prevalent view, among those who are concerned about the material flows we are generating, is that they are excessive and environmentally unsustainable. Greed, the triumph of competition over co-operation, the inequalities between North and South, and anthropocentrism are then blamed for this state of affairs. The solution is obvious: more altruism, a worldwide equalising of differences, a reining-in of market forces, and a whole new relationship with nature – ecocentrism. This, clearly, is a moral position, and those who act from that position will certainly be having some effect on the material flows. But there are other moral positions, and other ways of framing the problem and its solution, and it is this plurality of moral positions, and their modes of interaction, that are actually determining the material flows. If we are to understand these flows, and to come up with ways of lessening them, then the first essential is a map of these moral positions.

There is a sort of orthodoxy nowadays which sees the material flows that we are generating as excessive and environmentally unsustainable. Carbon dioxide from fossil fuels, sand and gravel for construction work, mangoes being flown into Europe from Honduras, domestic waste demanding more and more landfill sites, pig slurry causing algal blooms in the North Sea ... on and on. Greed, thoughtlessness, a capitalist system out of control, the triumph of competition over cooperation, the inequitable relationship between the nations of the North and those of the South, and anthropocentrism – our domination of nature when

what is needed is a self-effacing recognition that we are but one component within an intricately connected and inherently fragile ecosystem – are prominent among the reasons that are advanced for the material flows – the stuff that we are pushing around – being the way they are.

"Societal metabolism" – the way in which societies organise the exchange of matter and energy with their natural environment – is the umbrella concept for those who study these material flows (eg Fischer-Kowalski and Haberl 1993 and 1998; Schmidt-Bleek 1994; Ayres and Simonis 1994). Sometimes the depletion of natural resources is the focus (eg Meadows et al 1972); more recently the filling-up of available "sinks" (oceans, landfills ... the atmosphere) has come to the fore (eg Meadows et al 1992). Taken together, these approaches to (or overshootings of) nature's limits have been framed in terms of a gross imbalance between that portion of the earth's "primary product" that is appropriated by us humans and what is left over for the rest of creation (eg Vitousek et al 1986; Wright 1990).

This orthodox framing of the problem, clearly, is being done from a moral position – indeed, the whole discourse takes the form of a sermon about our profligacy and what it is doing to our relationships with one another and with nature[1] – and those who adopt that moral position, equally clearly, will be having some effect on the material flows. But there are *other* moral positions, and *other* ways of framing the problem, and it is this plurality of moral positions, and their modes of interaction, that are actually determining the material flows. This means that, if you are interested in the material flows, and if you are interested in finding ways of altering those material flows, then you will get nowhere until you have a "map" of those moral positions. Such a map is conspicuously lacking in most of the work that is currently focused on material flows.[2]

Some other moral positions

Throughout the 1950s and '60s the provision of housing in London was almost totally in the hands of the planners: far-sighted experts who were convinced that, for the common good, the development of the built environment should be brought under control and firmly steered in the desired direction. One of their main concerns, therefore, was the renewal of the war-torn and worn-out fabric of the inner city. One of their number, Harold P. Clunn, put it like this:

> London ... is marching on to a destiny which will make it the grandest city in the whole world ... London must be allowed to grow upwards and the straggling villas and small houses of Highbury, Barnsbury, Stoke Newington, Hackney, Maida Vale and St John's Wood must give way to new blocks of flats. (Clunn, undated, p.26-27)

In material terms, Clunn is talking about a good half of London's fabric: all that part, beyond the old cities of London and Westminster, that was built by the Georgians and the Victorians. It is roughly the equivalent, in Vienna, of demolishing and re-building everything between the Ringstrasse and the Gürtel. In New York, it would not be far short of the whole of Manhattan, together with outlying places such as Brooklyn Heights.

Much of this vast swathe of London did indeed give way to new blocks of flats and, if the planners had had it all their way, and if enough money had been made available to them, their algorithms for determining just when a section of the built environment had become "optimally demolishable" (their terminology) would have ensured that every urban acre underwent its "comprehensive re-development" (again, their terminology).[3]

Fortunately, a creative and motley assortment of owner-occupiers, who saw these 18th and 19th century houses as sadly neglected heritage, not rat-infested slums (the official perception), were able, through their myriad individual and uncoordinated efforts, to derail the planners' singular and unrelenting vision of

The New Jerusalem. It was this anarchic and innovative bunch who, in effect, privatised the despised communal burden, re-valued it (just one of those "straggling villas" could now set you back several million pounds) and put it into the healthy and highly liveable state in which we now see it.[4] This re-valuing of the built environment is something that now continues apace in almost every European and American City (and even in less occidental places, such as Kathmandu) but it would never have happened if control had remained in the hands of the planners.

Well, these two sets of actors – the planners and the "anarchic and innovative privatisers" – are quite well known to social scientists (they are often referred to as *hierarchies* and *markets*, respectively) and one of them – the "anarchic and innovative privatisers" – is precisely the villain of the piece in the conventional orthodoxy about the unsustainability of our material flows. But it was these "anarchic and innovative privatisers" who *invented* the re-valuing of the built environment! *They* were the ones who put a stop to the total physical renewal of the city every 50 years or so![5] It was *their* undermining of the planners' "vision of the future" that resulted in the "social learning" that we are the beneficiaries of today! All of which suggests that the conventional orthodoxy may be profoundly and disastrously wrong.

So let us take a closer look at the ways in which the material flows have changed, over the past 30 or so years, as a result of this clash between these two moral positions – the hierarchy and the market. And then, with the help of a more recent Austrian example, I will try to explain how these two moral positions relate to the one with which I began: the orthodoxy that calls for "a whole new relationship" between North and South, between haves and have-nots ... between man and nature.

Distinguishing between bad and worse

If today's flows are indeed unsustainable just think what they would be like if the planners had had their way. And if it is the "anarchic and innovative privatisers" that we have to thank for averting that horrendous future then we should examine how they did it. If they have managed to move things *so far* in the desired direction then we should seek to build upon these achievements if we wish to go even further. This direction, of course, may not be desirable to the occupants of every moral position. My argument is simply that those who *do* see this as the desirable direction need to understand the extent to which those who occupy other moral positions can contribute to what those who espouse the present orthodoxy see to be the solution.

- Those parts of London's inner suburbs that *were* comprehensively redeveloped resulted in massive material flows. The bricks and mortar from the demolished buildings were all carted away to be dumped in land-fills or used as hardcore, and all the timber – flooring, joists, rafters, doors, etc – was burnt on-site. Many of the replacements – high-rise systems-built tower blocks, in particular – have proved disastrous, structurally, socially or both, and have had to be demolished long before their planned 60 year life has elapsed.

- These colossal flows dwindle to a trickle in the case of those parts that have been revalued: the bricks, the mortar, the timber, the slates and the cast-iron balconies are still in place; they have not flowed anywhere. Of course, there *has* been work, and there will have to be much more if these houses are to stay in existence for ever (which is the present intention).

- But the flows that are generated by the careful and continuous repair of a renewable resource (which is what this swathe of London has now become), are altogether different from those that are generated by comprehensive redevelopment. Now, when a building or a part of a building *is* demolished, every brick is saved (even half-bricks).[6] Even more so with fireplaces, doors,

handrails, cast-iron fitments, door furniture and so on, all of which are profitably re-cycled by way of small local businesses that specialise in what is now called *architectural salvage*.

- The building work itself is much more skilled, and it is labour-intensive, not material and machine-intensive as is comprehensive redevelopment. And it is much more local and small-scale: good builders being passed on, by word of mouth, from house to house, often without even a change of street.

- Along with the growth of architectural salvage, there has been an astonishing re-birth of skills that had virtually disappeared in the '60s: ornamental plastering, bespoke kitchen-making, traditional joinery, scagliola, stained-glass, the laying of tessellated floors ... on and on. There is *nothing* that originally went into these houses that is not now being produced or done.

- And, to help people actually do it all, there is now a whole communication industry – from museum curators and academics to glossy magazines (like *Period Living and Traditional Homes*), coffee table books and television programmes – all merrily coining it in and spreading the word.

- Nor would it be right to see all this as "retro" or neo-Luddite. New technologies – timber treatments, damp-proofing, forced ventilation, thermostatically controlled heating systems, "Velux" roof windows and so on – are key ingredients in this process that is set in train by re-valuation. And the inhabitants of this inner swathe of London probably contain the highest proportion of "home-workers" anywhere in Britain. Their much-loved and carefully tended houses and gardens (the town garden, I have forgotten to mention, was another '60s invention) fairly hum with the latest information technology. The 18th century silk-weavers' houses of Spitalfields (the until recently run-down district immediately adjoining the City of London) have become the electronic cottages of the 21st century. What is more, these re-valued houses represent one of the few successful responses to what is

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probably *the* design challenge for the new millennium: *designing for selective slowness*.[7] They combine very high-speed and high-volume technologies of information with impressively slowed-down material flows. Far from having "pulled the plug on progress" (Katz 1996), or turned their backs on the future, (which is the prevalent perception at present) these houses and their inhabitants *are* the future!

So the good news is that we used to be committed to physically turning over our entire built environment every 50 years or so, and now we are not. And it is the market, not the hierarchy, that we have to thank.

Re-valuing, we should note, is altogether different from re-cycling. In re-cycling the building itself disappears and its physical components are then re-used in the construction of a new building (or, more likely, buildings). Re-valuing, however, is something that happens in our heads, and the building itself stays in place. The only change, to begin with, is in our attitude to the building. But of course, once we see it as sadly-neglected glorious heritage, rather than as awful rat-infested slum, our behaviour towards it changes, and that (as we have just seen) leads to all sorts of changes in the material flows associated with our built environment.

If you ignore re-valuation (and much of the work on material flows *does* ignore it) then you run the risk of ending up back with the planners, working out algorithms for optimal recycling rather than optimal demolition. This same planning mentality is evident among those who propose that goods like cars and washing machines should be designed so that they are more durable. The assumption here is that durability is a property of the things themselves, and this is demonstrably not the case. Durability, as the widespread phenomenon of revaluation clearly shows, far from being inherent to the things themselves, is a quality that is conferred upon them by processes that are wholly social. Despised pieces of furniture end up wrecked, or chopped up into firewood, regardless of how well they have been made. And cherished items, regardless of how flimsy or

fragile they are, will last for centuries. Things last because of the way they are seen and treated, not because they have been planned to last.[8]

Putting the Moralities on the Map

Market actors, of course, are pragmatic materialists, and they have little time for either "The New Jerusalem" that the planners are so eager to put in place or the "whole new relationship with nature" that is so passionately advocated by those who are convinced that we are already operating way beyond the limits. But there *is* a moral position around which those who believe in a life of bidding and bargaining are gathered: the Adam Smith argument that the pursuit of self-interest pays off only when it also adds to the welfare of the totality: "the hidden hand". So we now have the rudiments of the map I am looking for: three moral positions, each of which contradicts, and defines itself against, the other two (Figure 1). We can now resist the almost overwhelming urge to pronounce just one of these positions right and the others wrong. Put another way, there is some vital mutuality here, despite the irreconcilable differences between the three moralities. To speak of one or other of these three apices "winning" is as nonsensical as saying that the lions of Serengeti have won when they've eaten the last wildebeest in the park!

So let me pause for a moment to explain this mutuality, since it is the whole justification for the sort of moral plurality I am arguing for.

- The *hierarchical* planners, in clinging to comprehensive redevelopment, were losing control. However, they were able to regain control, once they had abandoned comprehensive development, by designating the re-valued streets and squares as "conservation areas" and by statutorily listing the individual houses as being "of outstanding historical or architectural interest".

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- The *individualistic* owner-occupiers, though they resented the loss of personal freedom that accompanied these hierarchical interventions, have found that being in a conservation area, or being "listed", adds considerably to the market value of their houses. This, in turn, enhances the tax-base of the local government authorities, enabling them, among other things, to enforce the various planning controls in the conservation areas and in relation to the listed buildings. Individualistic and hierarchical actors, thus, each give up something but gain much more: a bigger "bottom line" for the former, and more control for the latter.

- *Egalitarian actors* (a good example being the coalition of Green party activists and community associations that put a stop to Arsenal Football Club's attempt to expand its Highbury stadium by demolishing the streets of houses that surround it),[9] for their part, now have the satisfaction of knowing that, at the present rate at which houses are being replaced in Britain, each dwelling will have to last longer than The Pyramids: about as spectacular a reduction in material flows as one can imagine.

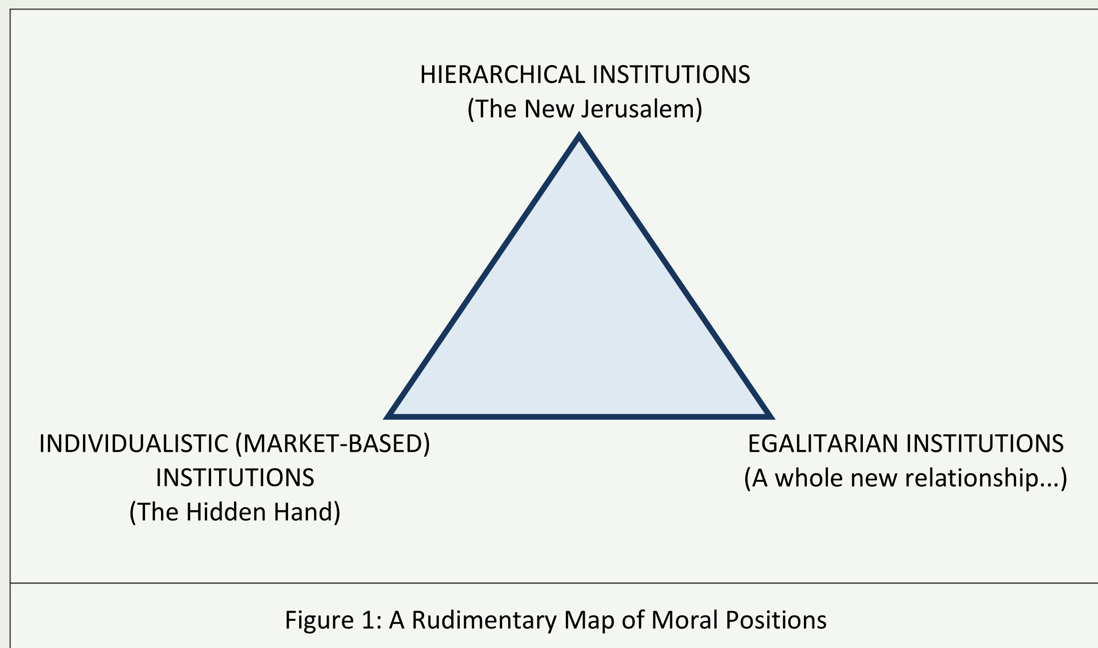

Figure 1: A Rudimentary Map of Moral Positions

This particular outcome – in which the actors at each of the three apices were able to get so much more of what they variously wanted by interacting constructively with one another (all be it, noisily and argumentatively) rather than by "winning" – came about by happy accident, of course, and not by design. But, now that we have the map of these moral positions (and some feel for the mutualities that, paradoxically it might seem, accompany their contentions), we can begin to think about ways of bringing about these desirable outcomes – they are called *clumsy solutions* (Verweij and Thompson 2006) – rather than just welcoming them when they happen to arrive.

Clumsiness By Design

Once we have this map we can recognise the moral legitimacy of all three positions, even though they contradict one another (and even though two of those positions will likely clash with the one to which we personally subscribe). This is in marked contrast to the conventional policy wisdom, with its insistence on a single agreed definition of the problem, its pretence at achieving a clear separation of facts and values, and its commitment to optimisation (around a single policy goal) as the only rational and sensible way to proceed. Such conventional approaches may be *elegant*, but that elegance is purchased at an unconstructive and undemocratic cost: the silencing of two of the "voices" in a triangular interplay that, as we have seen, can deliver to each of its contending apices more of what it is looking for than it could ever gain by establishing "hegemony" and going it alone.[10] The necessary conditions for clumsiness – each of the three voices heard *and* responded to by the others – are therefore almost the exact opposite of the conventional, and elegant, wisdom. Avoiding elegance, in consequence, is far from easy, which of course is why we need the map.

This map, I should mention, has now been drawn, in considerable detail, in relation to what has become the all-embracing policy issue over sustainability:

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global climate change (Thompson and Rayner 1998). So we do not have to do it all over again for the other material flows: the non-carbon ones, that is (Figure 2).

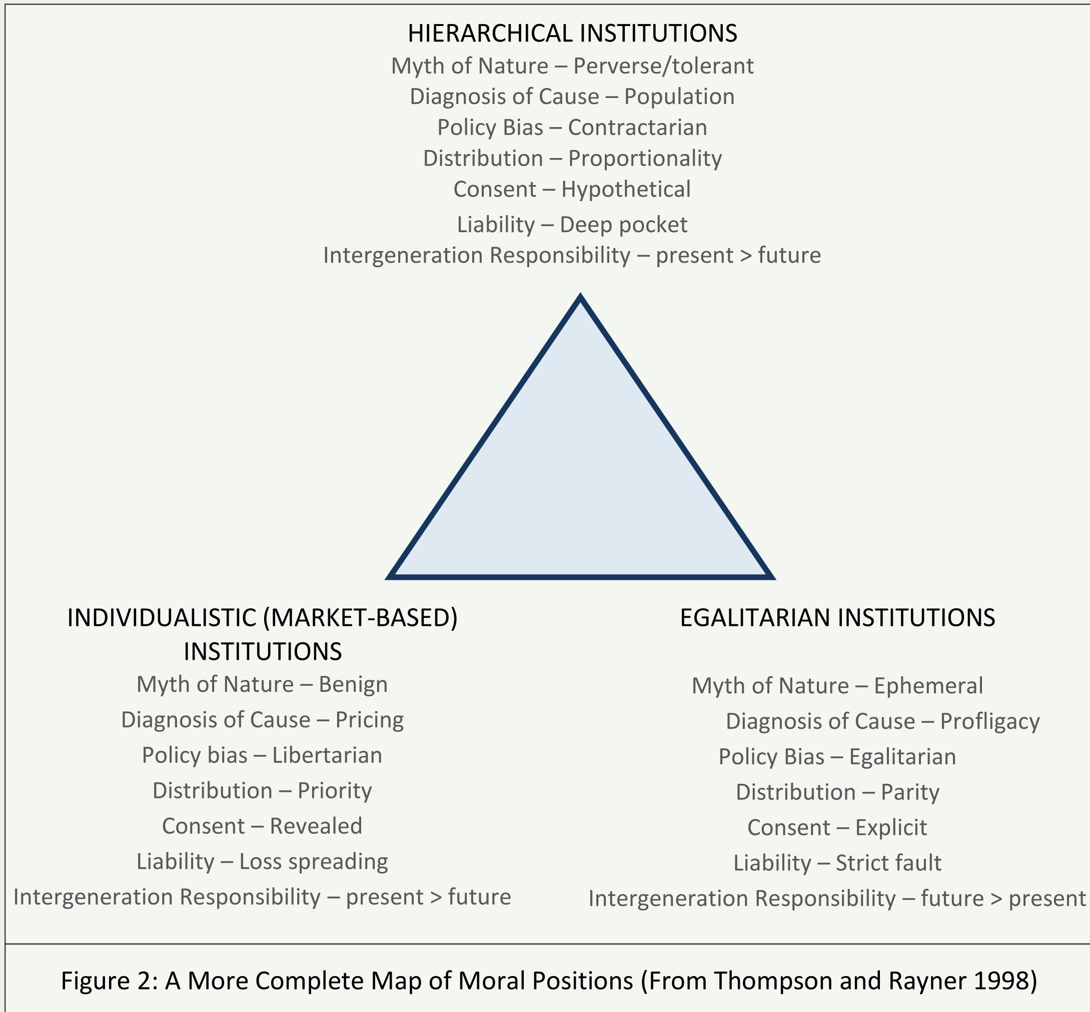

Figure 2: A More Complete Map of Moral Positions (From Thompson and Rayner 1998)

Let me turn now to the question of how to use this map. And, to give some sort of answer to this question, I will use a contemporary Austrian example: one concerned with what is one of the most worrying of all material flows: *hazardous wastes*. And, to keep the map-reading simple, I will rely almost entirely on just one of the characteristics it lists: *distribution* or, to put it more simply, *ideas of fairness*.[11] This example will also enable me to observe one of clumsiness's

guiding principles – the Principle of Equal Offence. I have been rude about the hierarchical planners when they set out to win, and I have been rude about the egalitarian actors who constitute the "new orthodoxy"; now I will be rude about the market actors when they too strike out for hegemony.

Against Elegance

Lawrence Summers' (1991) famous World Bank memorandum – urging that the rich countries export their hazardous wastes to the poor countries – is based on the impeccable and seemingly value-free logic of economic efficiency.[12] The trouble is that this market-based solution, in globalising waste, runs slap-bang into a rather widely held (and essentially egalitarian) conviction that waste should be localised: people, whenever possible, should take care of their own messes.[13] To sort out this clash, and to understand just why Summers got into such hot water with his impeccable (and elegant) memorandum,[14] we need to look at the contending ideas of fairness that are revealed by our map (specifically the "distribution" heading in Figure 2).

- *Market actors* believe that a fair outcome is one in which those who have put most in get most out (Sternberg 1994): a principle that would not work very well if those of higher social status were insisting that, regardless of their contribution, they were entitled to more than the lowerarchs. Equality of opportunity, therefore, is the market actor's idea of fair process, with outcome fairness being the matching of reward to contribution. Of course, this does assume that there are going to be some profits to be distributed, and this is where the "invisible hand" comes in: individuals benefit, market actors believe, only when their bidding and bargaining benefits everyone else as well. All these fairness conditions come together in the notion of "Pareto optimality", which asserts that a decision that results in the winners being able to compensate the losers and still be better off themselves is superior to the way

things are. What is crucial in this economic efficiency argument is that the winners *can* compensate the losers, not that they *do*. Indeed, for this redistribution to actually happen there would have to be some extra-market authority – a hierarchy – to do the job, and if that re-distribution ended up destroying the incentives that had created the improvement in the first place then the market actors would not be best pleased; they would feel that the hierarchy had acted in a way that was unfair.

- *Hierarchical actors*, however, are primarily concerned about status differentials. Distribution, they believe, should be by rank and station, and if the market is disregarding these important distinctions (as it will be if it is functioning efficiently) then the hierarchy, in the interests of fairness, should step in and re-distribute so as to ensure that each gets the desserts appropriate to his or her position within the layered totality. At the extreme, the hierarchy steps in to such an extent, and with such a disregard for incentive structures, that the market disappears completely and we get a centrally-planned economy of the kind that used to be so prevalent in Eastern Europe. Those who believe that such systems, and their accompanying ideas of fairness (outcome by rank and status, process according to who has the right to do what and to whom), have now gone for ever should take a look at village India (where Brahmins routinely argue that they should get more water because they are more easily polluted than those in the lower castes) or at the current international negotiations on climate change (in which the developed countries argue that they should have higher carbon quotas because their economies are more energy-intensive than those of the developing countries).

- Both the market actors' ideas of fairness and the hierarchists' are anathema to *egalitarian actors*. Egalitarians are levellers: people, they insist, should start off equal and end up equal. Absolute parity – before, during and after – is their idea of what is fair, and they are therefore bitterly critical of all the inequitable things that go on in the other two arrangements – markets and hierarchies. Where market actors and hierarchists can quite easily reach some

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> sort of mutual accommodation around the notion of "Pareto optimality" (the market creating the improvement and the hierarchy ensuring that the re-distribution it sees as essential actually happens) egalitarians form themselves into a "rejectionist front": they much prefer a situation in which people are more equal to one in which they are all better off but less equal. Not surprisingly, egalitarian actors often find themselves excluded from the policy process: an unfortunate state of affairs at the best of times, and particularly unfortunate when the transactions with which the policy is dealing are in something – waste – that many people would prefer to see handled (to some extent, at least) by the egalitarian arrangements.

How, then, does this framework – three ideas of fairness, each of which fundamentally contradicts the other two – help us to design ways of handling waste better? To answer that question I will zero-in on one particular instance: the siting of two hazardous waste facilities in Austria in the 1990s.

Consenting Adults and Unsilenced Voices[15]

In Austria things have long been done in a fairly hierarchical way and so it is not surprising that, when the powers that be decided that two new hazardous waste facilities were needed, they set in train a selection process that was high on both technical expertise and secrecy. The towns of Blumau and Enzersdorf were eventually identified as suitable candidates and then, in a departure from the usual legal procedures (a departure that suggests that, even in Austria, hierarchy is no longer as strong as it was) the citizens of these communities were involved in the approval process, but only on the condition that, if the sites were confirmed as being technically qualified, they would raise no further objections. It was also explicitly stated that their characteristics – Blumau is a poor farming community; Enzersdorf already burdened with other industrial risks – would not be factors in the site approval process.

The citizens of Blumau and Enzersdorf, by and large, fell into line with these stipulations which, in their turn, are consistent with the utilitarian ideals that are set out in the Austrian constitution: the greatest good (or, in this case, the least burden) to the greatest number (Linnerooth-Bayer and Fitzgerald 1996). In their deference to expert opinion, and in their willingness to sacrifice themselves for the common good, the citizens conformed to the hierarchical expectations of their government, and the government, for its part, marshalled the required technical expertise and shouldered ultimate responsibility. Asymmetry and accountability – these are *the* defining characteristics of hierarchy (Gross and Rayner 1985) – and, from this perspective, both the process and its eventual outcome were fair.

A contending approach – prevalent in the United States and, as we will see, not entirely absent in Austria – is less trusting of hierarchy, preferring instead an outcome that is derived from competition, bargaining and initiative: a process that is based squarely on individual rights and community consent. Advocates of this approach – the voluntary or market-based approach – point to the fact that it guarantees a Pareto improvement: that is, a decision which, thanks to the compensation package that has been arrived at by market-like procedures, is preferred, by all concerned, to the *status quo*.

Such a justification, however, has to assume that all those concerned favour the market solution. Egalitarians would not be happy with such a process and outcome, arguing that they would guarantee that unwanted facilities ended up in poor and disadvantaged communities. And hierarchists too would be alarmed, but for different reasons. Their objection would be that the sort of social cohesion that is achieved when the parts sacrifice themselves for the sake of the whole will have been jettisoned in favour of an ignoble and socially debilitating appeal to self-interest.

Joanne Linnerooth-Bayer (1999), in her exploration of the ideas of fairness that are held by the Austrian public, put together a questionnaire that took the respondents through the various solutions: expert assessment of technical feasibility (hierarchy), voluntary siting with compensation (market) and personal

responsibility (egalitarian). She also crafted one question so that it exactly matched the recommendations of Lawrence Summers' World Bank memorandum, presenting them in a light so rosy that those who did not go along with them would actually be letting innocent children die.

> Even with compensation, it seems certain that all of the technically-feasible communities will resist having the facility. Yet, a neighbouring country, with large-scale environmental problems and few resources for dealing with them, has offered to host the facility for compensation (it can use this compensation to deal with serious problems like improving its air and water quality, thereby reducing, for example, its rate of cancer in children). Should this offer be accepted?

Eighty-four percent of those polled – a remarkably high figure in social survey work – said "No". From this we should, I think, conclude that economic efficiency should not always be taken as the criterion in policy choice.

A Touch of De-Globalisation

In this Austrian example I have gone out of my way to emphasise and champion a solution – the egalitarian – that is strongly in favour of the localisation of wastes, in contrast to the more widely recognised solutions – markets and hierarchies – both of which work very much in the direction of globalisation. My aim, however, has not been to sweep away the market and hierarchy solutions and replace them with the egalitarian. Rather, it has been to argue that we need, all the time, to ensure that all three solutions are granted legitimacy and given due consideration in the policy process. If I have given excessive attention to the egalitarian solution it is simply because that solution is at present being excluded. ("Globalisation", declared United States president Bill Clinton, is "not a policy choice, it's a fact", and Britain's prime minister, Tony Blair, not to be outdone, asserted that it is "irreversible and inevitable".)[16]

Including that solution, I have argued, would increase the attractiveness (and, indeed, the visibility) of policy options that act so as to localise wastes, thereby stimulating a countervailing trade in the technologies and expertises for treating those localised wastes. The result would be a global market in goods – something that is much less troublesome than a global market in bads (as economists call unwanted things like hazardous wastes). Such a solution, moreover, would have the added attraction of comporting with, rather than going directly against, widely held ideas of what is fair and unfair.

Alongside this clumsifying endeavour there is, of course, a related aim: to put the boot into the sort of "single apex" approaches that are all the time being urged upon policy-makers: the individualist one that is cast in terms of economic efficiency, the egalitarian one that points to the unsustainability of the material flows that are generated by our profligacy, and the hierarchical one that was derailed in the nick of time by inner-London's owner-occupiers. Such approaches bring order and elegance certainly, but they seek to resolve a vital and potentially constructive debate by silencing two out of the three voices that constitute it. The alternative – allowing all the voices to be heard, and ensuring that they respond to one another – makes the policy process much more argumentative (a good thing, many theorists of democracy maintain – eg Beck 1992; Fischer and Hajer 1999; Ney and Thompson 2000) and (and this is the most important argument in its favour) helps ensure that the policies that that clumsified process comes up with are more *robust*: more likely to enjoy widespread consent and less likely to result in a loss of public trust in the institutions that have decided on them.[17]

In Austria, for instance, there is (as we have seen) massive resistance to the exporting of waste across the nation's borders but, within those borders, there is considerable support (53%) for the traditional hierarchical approach with its reliance on technical expertise and ministerial secrecy. More surprisingly, perhaps, there is quite strong support (40%), again within Austria's borders, for the market solution: voluntary siting with compensation to the community concerned. This suggests that a robust policy (for Austria, that is; other countries, having different strengths of the three voices, would require that policy be tailored to

their distinctive political cultural frames) would be one that relied, to a considerable extent, on the traditional "top-down" expert assessment, that instituted *ex post* compensation for the technically selected community, and that placed a ban on the trans-border trade in wastes. And this, indeed, is pretty close to what is now in place in Austria. It is, however, a long way from the sort of solution that is set out in Lawrence Summers' World Bank memorandum!

No one of the three voices, we should note, has it all the way it prefers: the hierarchical planners would like to control it all, the market actors would like *ex ante* compensation, and the egalitarian activists would like the principle of responsibility to be brought all the way down to the individual and the manufacturer, not just to the nation's borders. But each gets much more than nothing, and no one gets much more than the others. Each, moreover (and this is where clumsiness becomes even more counter-intuitive) gets more of what it wants than it would have got if it had gone it alone and succeeded in imposing hegemony. The policy, therefore, is robustly clumsy: tailored to Austria's distinctive plurality. It is also *flexible*: each of its different components can be tightened up or loosened, extended in scope here and cut back a little there, as circumstances change and as information becomes available as to how well it is doing in relation to what was expected of it. The policy, in other words, is itself a *learning system*, thanks to it containing a plurality equal to that which exists among those to whom it is being applied. And the triangular map (in this case, in terms of ideas of fairness) is the simple and practical means by which this robustness and flexibility can be achieved and maintained.

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[1] This "sermon" discourse, along with its two rivals (one in the algebra of economic efficiency, the other an expert-dominated discourse of "wise guidance"), is analysed in Thompson, Rayner and Ney (1998).

[2] There are some exceptions. The "perspectives approach" in integrated assessment (Rotmans and de Vries 1997; van Asselt 2000) is based on the three-cornered map of moral positions presented in this paper, and so is the "structured approach" in life cycle impact assessment (Hofstetter 1998).

[3] Those who believe that planners have now learnt their lesson, and no longer think in this way, should read what Michael Gwilliam (1996), the director of Britain's Civic Trust, sees to be necessary. In this short letter the word "vision" occurs five times. It is a vision that "must encompass and link together economic viability, social equity, sustainability and a view of development as a positive force which we can channel to bring new life, prosperity and vitality to our cities, towns and villages".

[4] All this is explained and analysed in detail in Thompson (1979) and again in Thompson (1987).

[5] This is not to say that material recycling has now been replaced everywhere by re-valuing. Large scale property developers like a "green field site" (or, if they can't have that, a cleared site: a "tabula rasa"). It is the small-scale innovators who prefer a "palimpsest". So, if your aim is to reduce the material flows, regulate in favour of the small scale!

[6] In modern, cavity-wall, construction a one-brick-thick outer skin is tied (using alloy links) to an inner skin of concrete or "Thermalite" blocks, and this means that half-bricks are needed to form the "headers" in the traditionally-bonded brickwork. Of course, full-bricks could be broken in half for this purpose but it makes more economic sense to use the available half-bricks rather than to throw them away (as used to happen).

[7] Another is the "slow food movement". And there are some academics who, noting that information technology, while allowing you to write more and publish more, does not enable you to read more, are the vanguard of the slow scholarship movement".

[8] The physical properties of an object, however, are not entirely irrelevant. For instance, buildings that incorporate quite a high level of redundancy (walls thicker than they need be, ceilings higher, halls wider, roofs over-engineered and so on) lend themselves to re-valuation more readily than those that (possibly to reduce physical flows) have had their designs optimised (in the sense that all possible failures, in theory anyway, occur simultaneously). "Good design", you could say, is bad design. This, and related paradoxes, are explained in Thompson (1979).

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[9] This story is recounted in chapter 1 of Thompson (2008).

[10] Clumsiness emerges as preferable to elegance (optimising around just one of the definitions of the problem and, in the process, silencing the "voices" at the other two apices) once we realise that what looks like irreconcilable contradiction is in fact essential contestation. Moreover, since each voice usually argues that its solution to its definition of the problem will strengthen democracy, whilst those being urged by the other two will weaken it, democracy too becomes an essentially contested concept: a concept which, following Gallie (1955), can never be pinned down in a single way but can be clarified only through regular argument, that is through discourse. Each apex, therefore, has its own social construction of democracy: its "model" (Hendriks and Zourides 1999) or "image" (Jensen 1999). Clumsiness, in consequence, has normative implications that link policy, technology and democracy in ways that mainstream political science has disregarded (see, for instance, Ney and Thompson [1999] and Tranvik, Thompson and Selle [2001]).

[11] The other listed characteristics are explained in Thompson and Rayner (1998).

[12] The memo was leaked (to *The Economist*) some 10 months after it was circulated within the World Bank. Faxed copies were also distributed around the globe by the Washington office of Greenpeace, but the memo itself was never published under its author's name. It is reproduced in Harvey (1999).

[13] For example, a letter (by Alan Will) to the London-based *The Independent* on the day I was originally writing this (6 November 2002) and headed "Responsible rubbish" concludes with the assertion: "Everyone should take responsibility for their own garbage, and not expect someone to run round to clear up after them". However, since this was in response to a letter complaining that local authorities were not collecting bags of rubbish quickly enough and that animals were ripping them open and making a mess, it is evident that not everyone accepts this fully-localised responsibility.

[14] Gleefully chronicled by Bruce Rich, who sees the infamous memo as one of three events (the other two are the release of an independently commissioned report on the Narmada River Sardar Sarovar dam in India, and the internal study of the Bank's project quality) that "raised serious questions about the Bank's integrity and competence" (Rich 1994, p.240).

[15] This section is based on Thompson (1998). That paper, in its turn, relies heavily on the work of Joanne Linnerooth-Bayer. For more recent developments in relation to ideas of fairness see Linnerooth-Bayer (1999) and Rayner, Malone and Thompson (1999).

[16] From the report on a speech, by the Green MEP, Caroline Lucas, in *The Independent*, London, 25 October 2002.

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[17] Of course, if each policy option was supported by those who speak with one voice and rejected by those who speak with the other two voices then we would be no further forward, but this is not always the case. Sometimes an option is supported by all three, but for different reasons; sometimes an option is rejected by all three, but, again, for different reasons. People can, and quite often do, agree that some things are fair and that some other things are unfair, even though they hold to different ideas of fairness. The latter options are remarkably unrobust and can be weeded out; the former are robust and deserving of a second glance. And then, after this initial sorting has been carried out – a sorting that is only possible if we have equipped ourselves with this plural framework of ideas of fairness – hitherto unconsidered options may present themselves, and we may begin to notice various modifications of existing options that, were they carried out, would help increase the support for (and hence the robustness of) those options. (eg The option of a new site for Arsenal just one kilometre from their old stadium, which had not been noticed by anyone until the Highbury Community Association forced its way in and thereby clumsified the process. See chapter 1 of Thompson [2008].)