A stylized landscape with rolling hills in shades of green and brown. A path of white footprints leads across the hills from left to right. The background is a dark green gradient.

Rhys Taylor

Learning from research and
education experience

Living Streets Aotearoa



Could sustainability get us onto our feet?



NZ Walking Conference contribution.

Rhys Taylor, 03 960 2656

Landcare Research (contractor)

5 August 2008



Manaaki Whenua
Landcare Research

We're Kiwis – so, we drive!

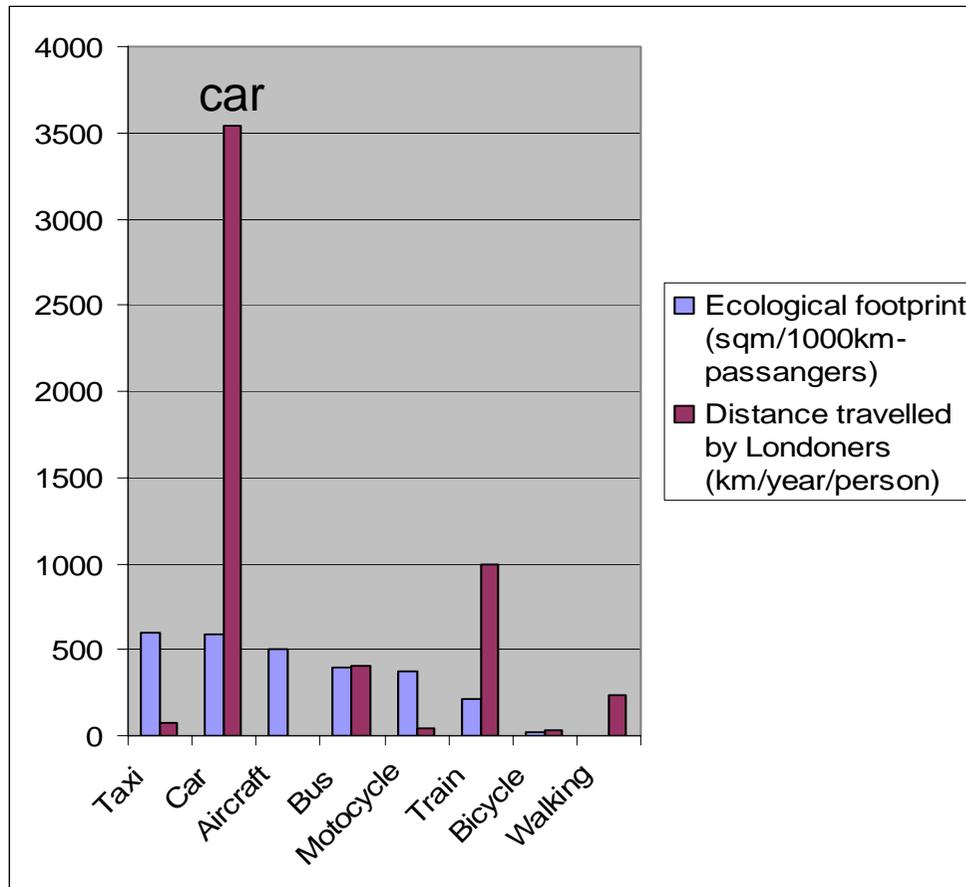


We need our car... to bring home the portable gas heater, so that indoor air quality can be as toxic as urban road corridors...



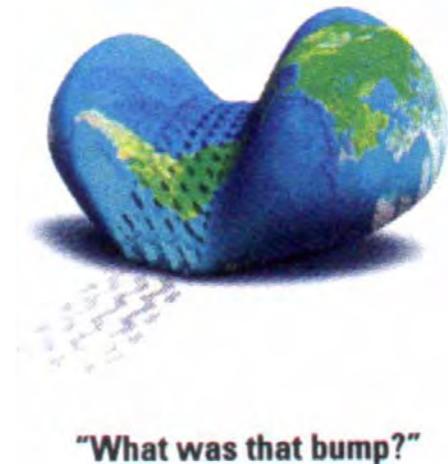
Manaaki Whenua
Landcare Research

Why reduce car use?

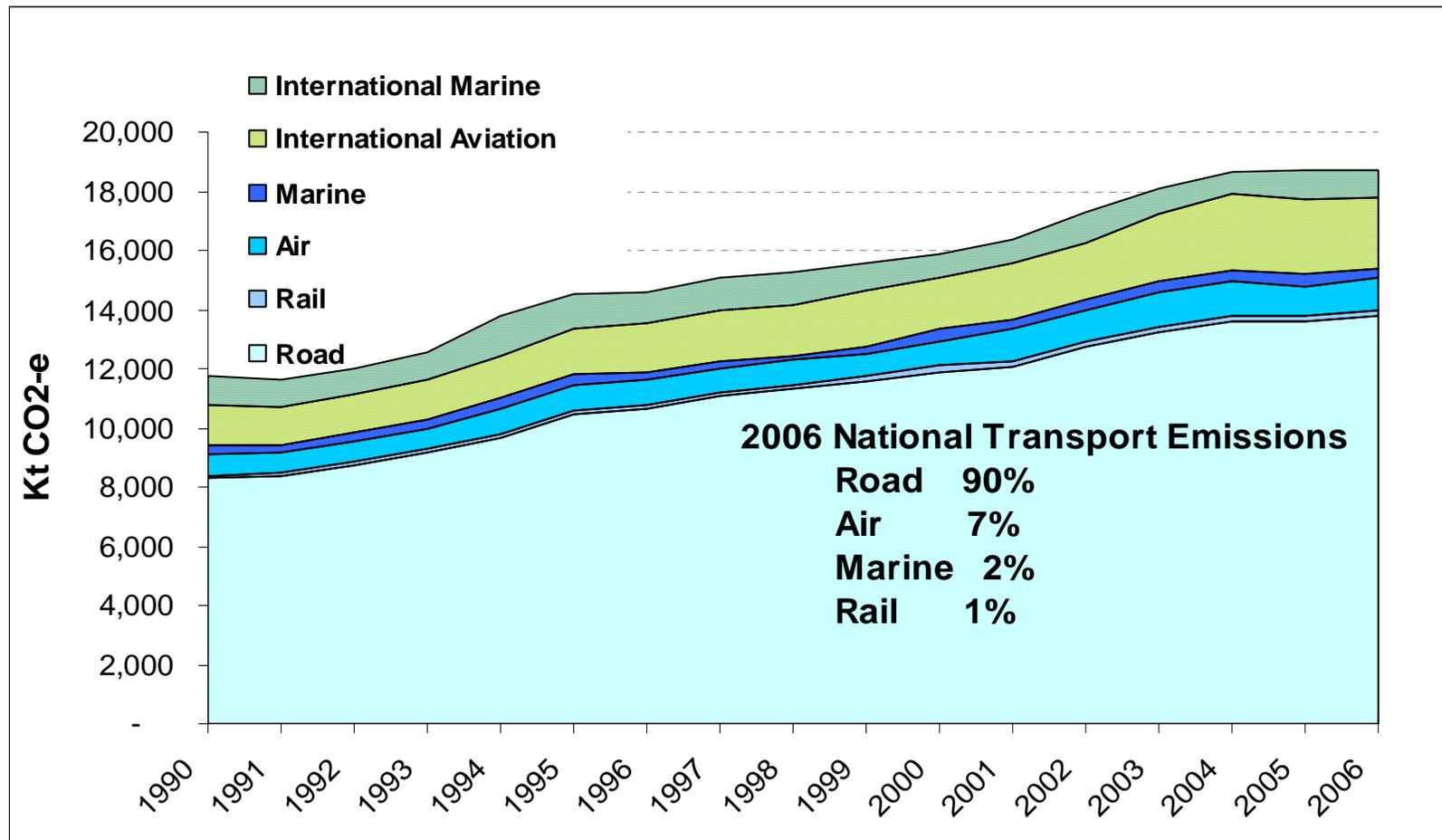


London distances traveled, by mode and ecological footprint of mode.

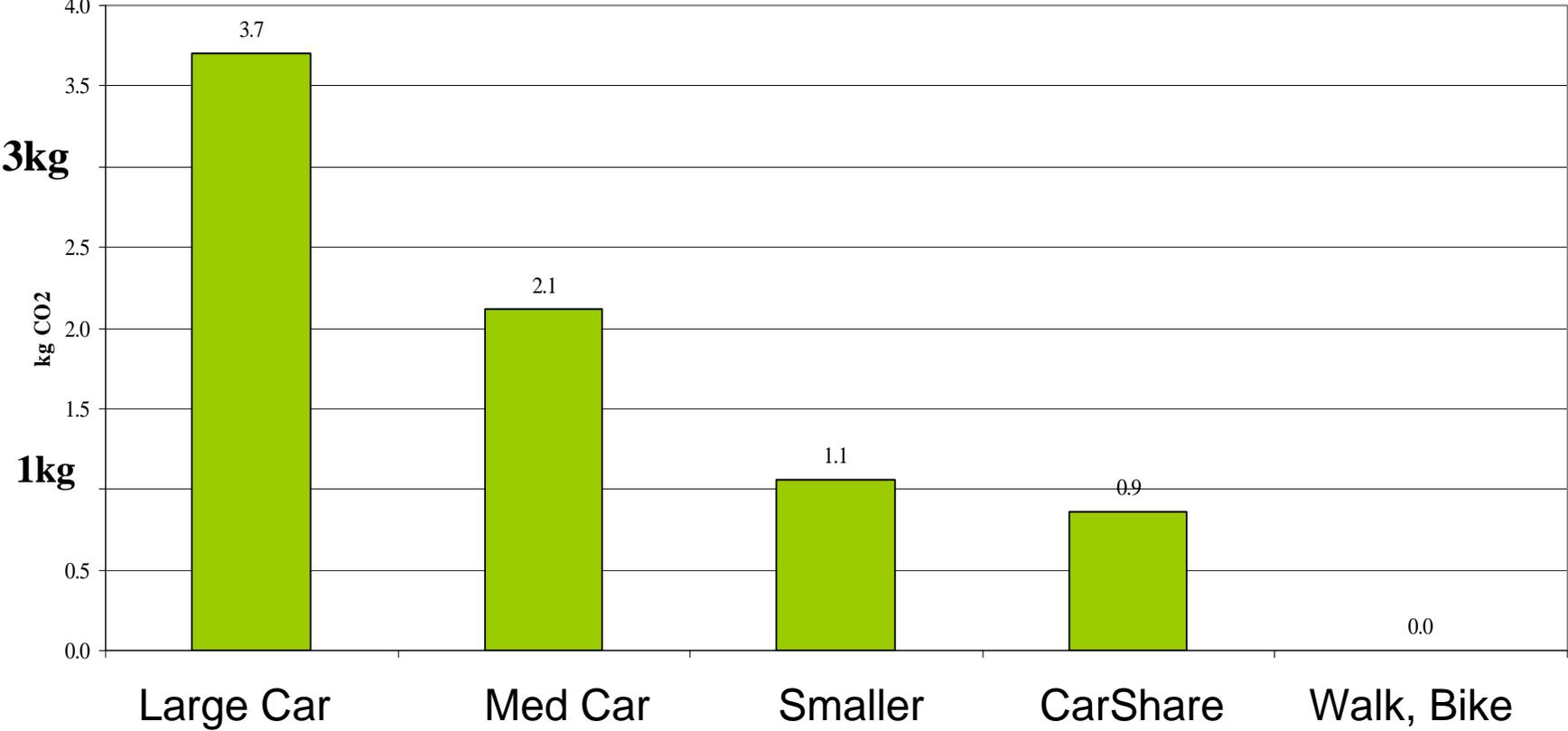
Cars have a large eco-footprint & if you think London looks bad... NZ cities have higher per capita car ownership than London; less-dense settlement; and fewer public transport alternatives.



NZ Transport CO₂ emissions



CO₂ emissions, 10km journey, per person



'Climate Change' messages

- A per capita 'share' of emissions would be much lower than now.
- Disturbed weather driven by temp rise & it will probably get worse. We must both adapt & reduce CO₂ emissions.
- 'One planet living' is required, for sustainability.



Manaaki Whenua
Landcare Research

How aware are we, really?



- Choosing to walk in place of driving, on short trips, results from a moral conversation on carbon (greenhouse gas) emissions, as well as a rational choice relating to rising fuel costs & road congestion.



Manaaki Whenua
Landcare Research

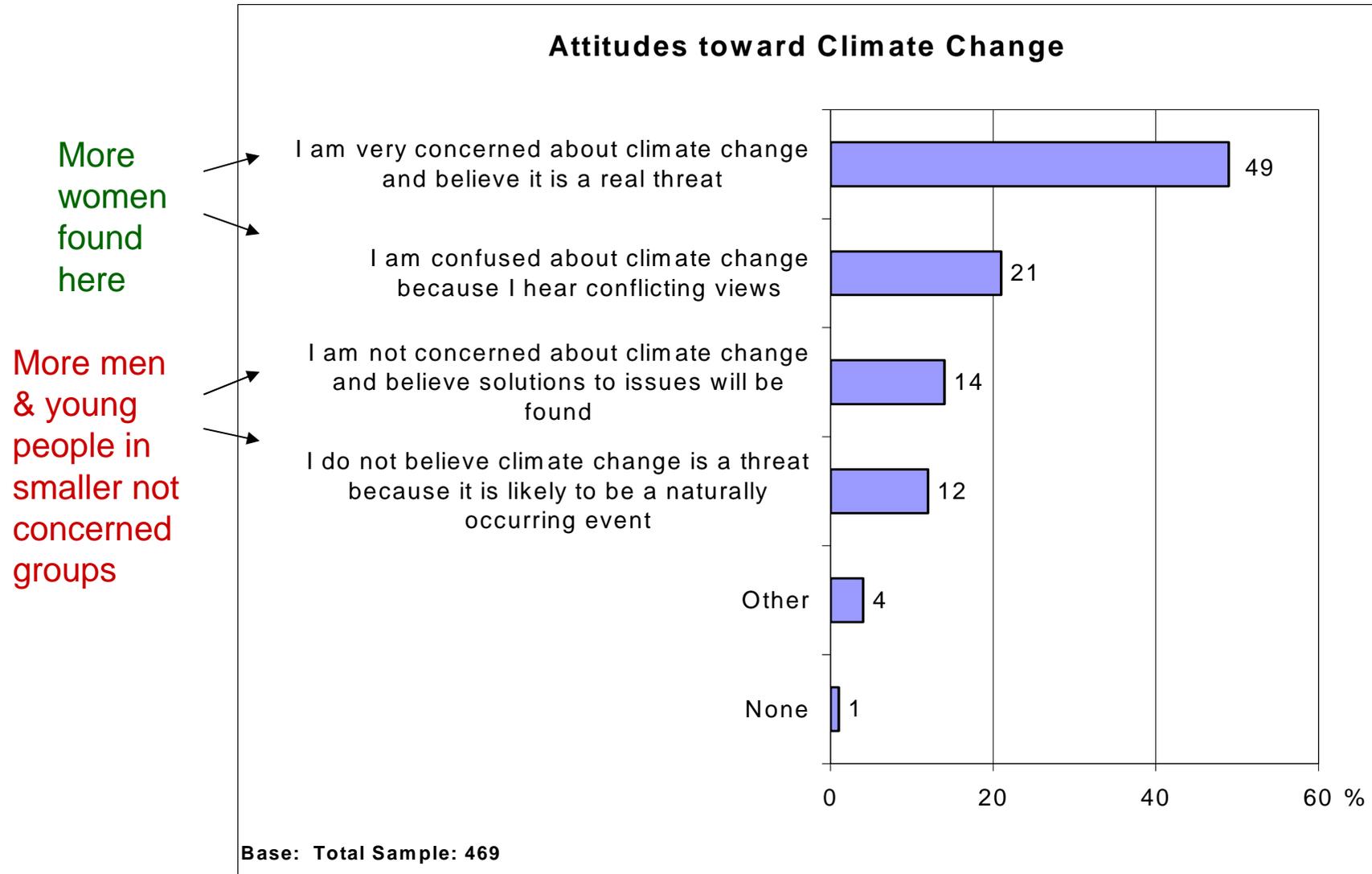
Sustainability Values

- At least a quarter of New Zealanders say they understand 'sustainability' and 83% of these say an urgent issue for central and local Govt – majority of these people are educated males in mid and older ages. Of same group, 43% said individuals should act, too. (Research NZ survey 2007)
- CCC survey 2007 revealed another aspect, on Climate issues:



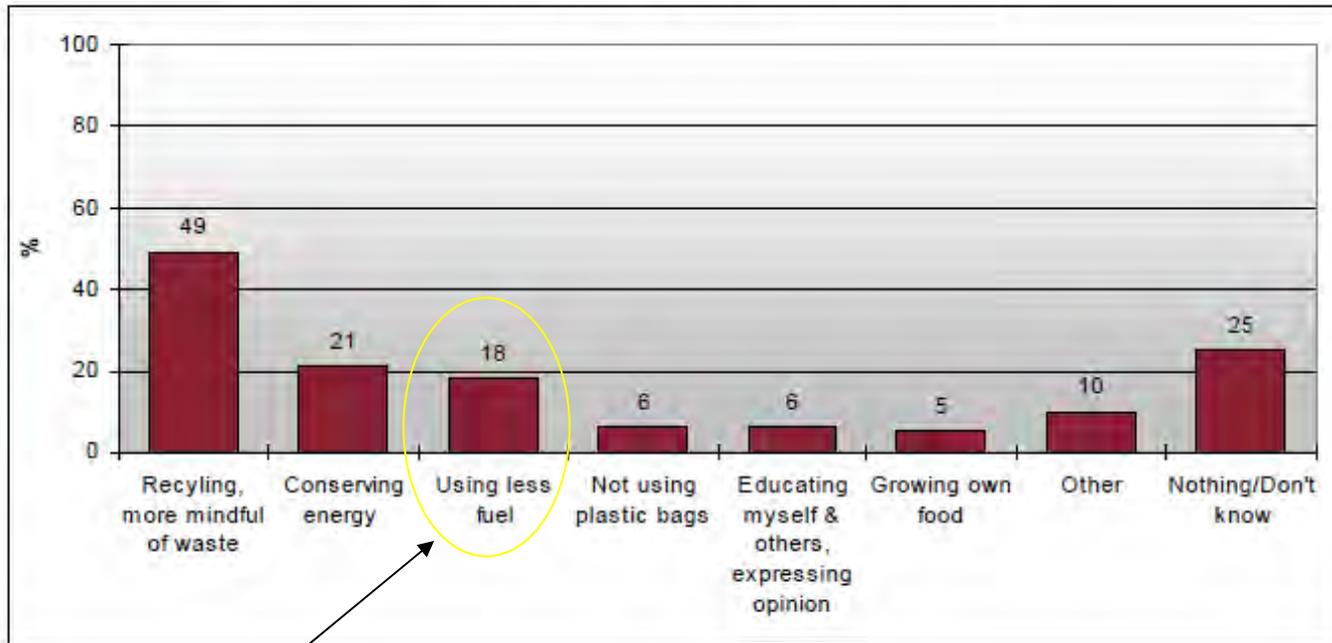
Manaaki Whenua
Landcare Research

Survey of Christchurch Residents by CCC, 2007 – shows age and gender differences in attitudes



“How I help NZ be more sustainable”

Figure 4 Behaviours undertaken to help New Zealand become more sustainable General population survey



18% indicated ‘using less fuel’ as example of a contribution they’d make to help NZ become more sustainable, compared to larger 49% suggesting ‘recycling waste’. (Research NZ survey 2007 for MfE)



Manaaki Whenua
Landcare Research

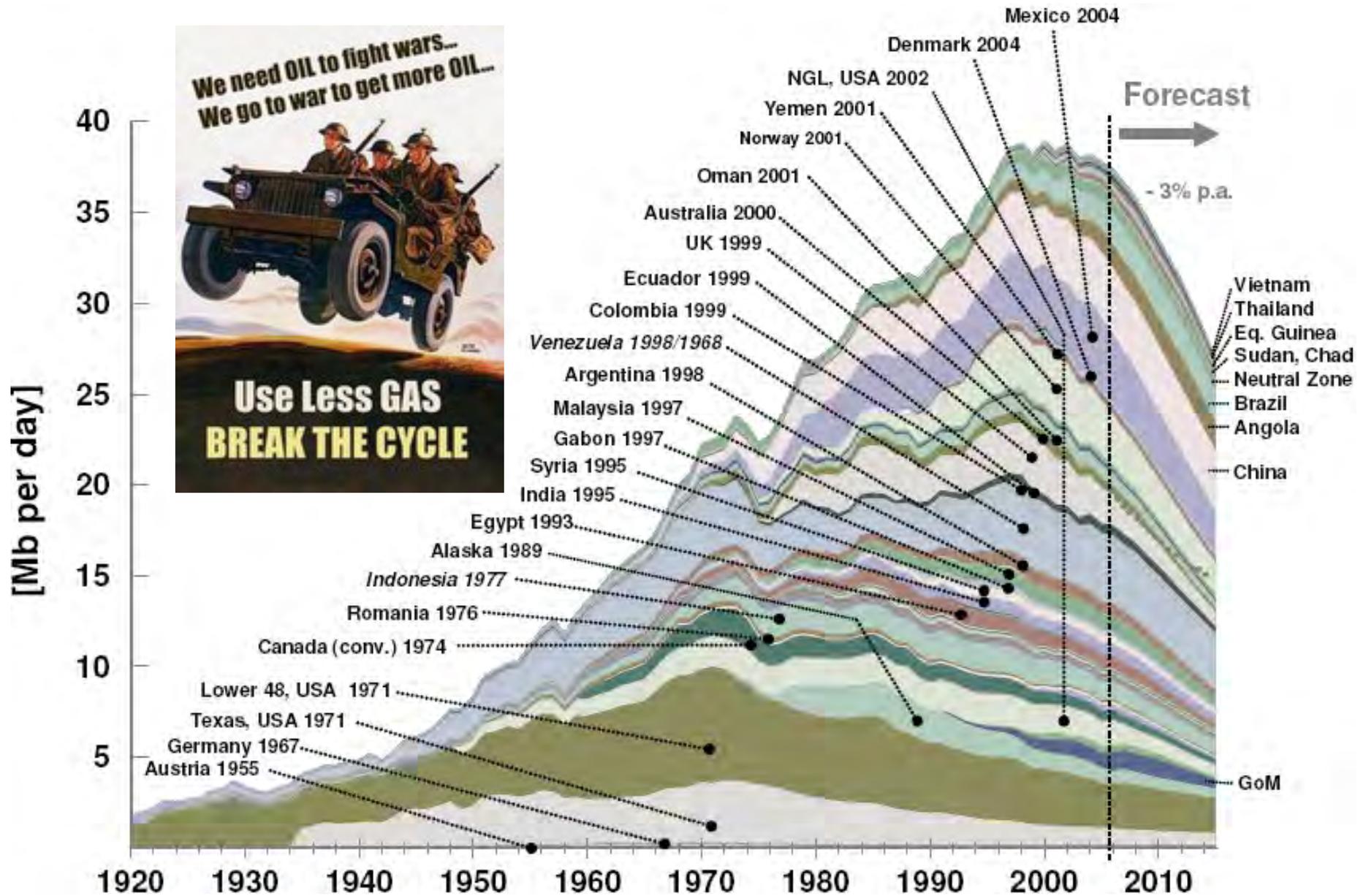
Sustainability...Climate... too abstract and long term?

- There's a new imperative, closely connected, and an economic driver:
- Perhaps arrival of Peak Oil will make the difference?



Manaaki Whenua
Landcare Research

Oilfields' production peaking



Oil has few alternatives

- Global Peak Production in 2008?
- Liquid fuel price steeply up.
- No easy alternatives (before say, 2020?) Limited bio fuel quantities as it competes for food; battery cars or hydrogen cells need 'spare' renewable electricity to charge them, or require extra generation from fossil fuel burning (with CO₂ consequences).



Manaaki Whenua
Landcare Research

UK survey – cutting car use

- DEFRA survey 2002, A third of respondents had reduced car use for short journeys, in order to: **walk more** (59% of these), save money (17%) and help the environment/reduce pollution (17%)
- Of those who continued car use on short trips, 22% lacked public transport alternatives, 26% 'did not want or have time to change'.
- Only fuel cost was being considered in mode choices, not cost of car ownership.



Manaaki Whenua
Landcare Research

NZ car use (*pro* and *anti*)

- Participants on NZ Sustainable Living evening courses can find equal number of reasons to debate *anti* and *pro* car.
- New knowledge not enough to change their car use. Limited car use change after attending courses, although much new action is being taken in other aspects of life, post-course.



SL evening class about travel, for drivers, held on a bus in Christchurch.



Manaaki Whenua
Landcare Research

Barriers to quitting car use

- Door to door 'convenience', especially if free parking available.
- Dry, comfortable, private & have preferred company or music.
- Load carrying - for shopping, work & play.
- Have children or relatives to transport.
- Perceived speed c.f. other modes
- Perceived safety (may be false!).



Manaaki Whenua
Landcare Research

Why so little change?

- People are not quitting cars for more-sustainable travel behaviour, because:
 - A few may be **unaware** of international concern on ‘sustainability’ issues.
 - Or aware but **uncertain**, e.g. doubt or underestimate the scale & consequences of the problem (Peak Oil, Climate Change, pollution?)
 - A few might be **incapable** of changing from car use due to a lack of physical abilities (e.g. users of adapted mobility vehicles).
 - And/or...



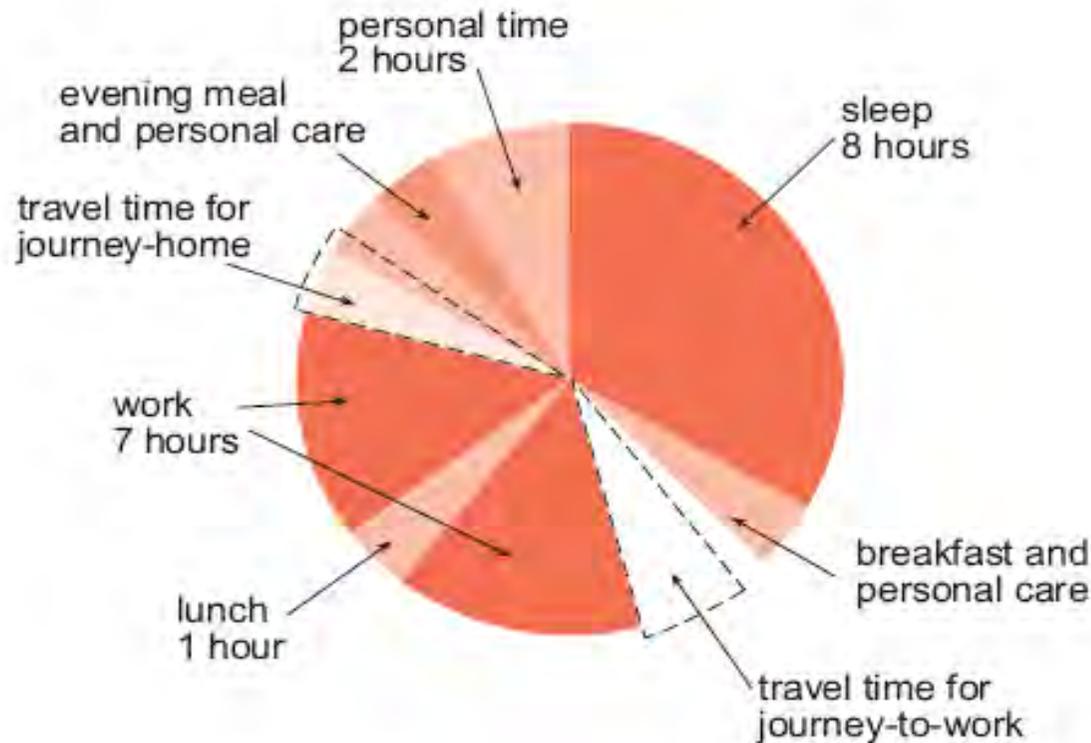
Manaaki Whenua
Landcare Research

Further reasons to stay in cars

- Changing from cars may **impair their work or quality of life** (e.g. loss of access to workplace or school; longer commuting time).
- They perceive their individual behaviour change as **marginal**: “hardly have an effect on the collective environmental problem”, (or note that others changing is OK, gives them more road-space to drive on.)
- Values are unchanged, no wish to lead, so they **wait** until other people change their behaviour first, and might follow or imitate.



Time & costs for commuting



DRIVE TO WORK / WORK TO DRIVE



Manaaki Whenua
Landcare Research

Typical daily tasks that make-up a daily routine
(Zeibots M.E. 2003)

Forming new 'auto' habits

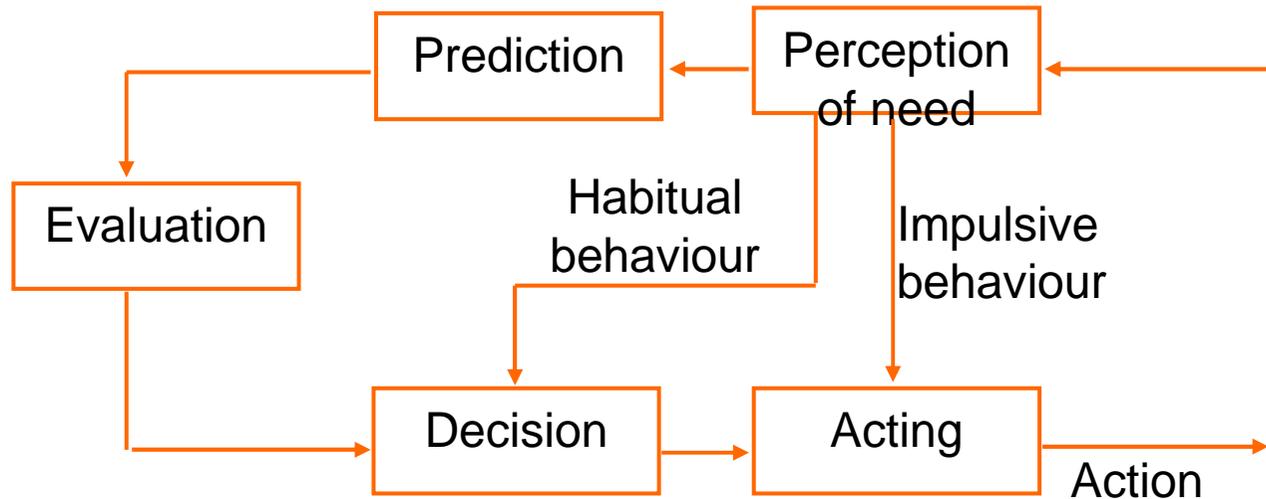
- Much of the time we run on 'automatic', only addressing habits when we are disturbed from that course, such as a need not being met.
- So, if a large & thirsty car becomes both unfashionable and unaffordable, we might change car model, but not the habit of driving.

drivers re-fill
on a wet
Friday night,
as fuel
reaches \$2/L



Manaaki Whenua
Landcare Research

Decision-making responses



- Habitual behaviour (e.g. commuting, shopping) follows a perception of need straight into a pre-decided action, with no prediction or evaluation steps involved in the decision.

Source: Types of decision making (Weggemans, 2004, as cited by Karlik-Neale, 2007)



Manaaki Whenua
Landcare Research

Behaviour change theories

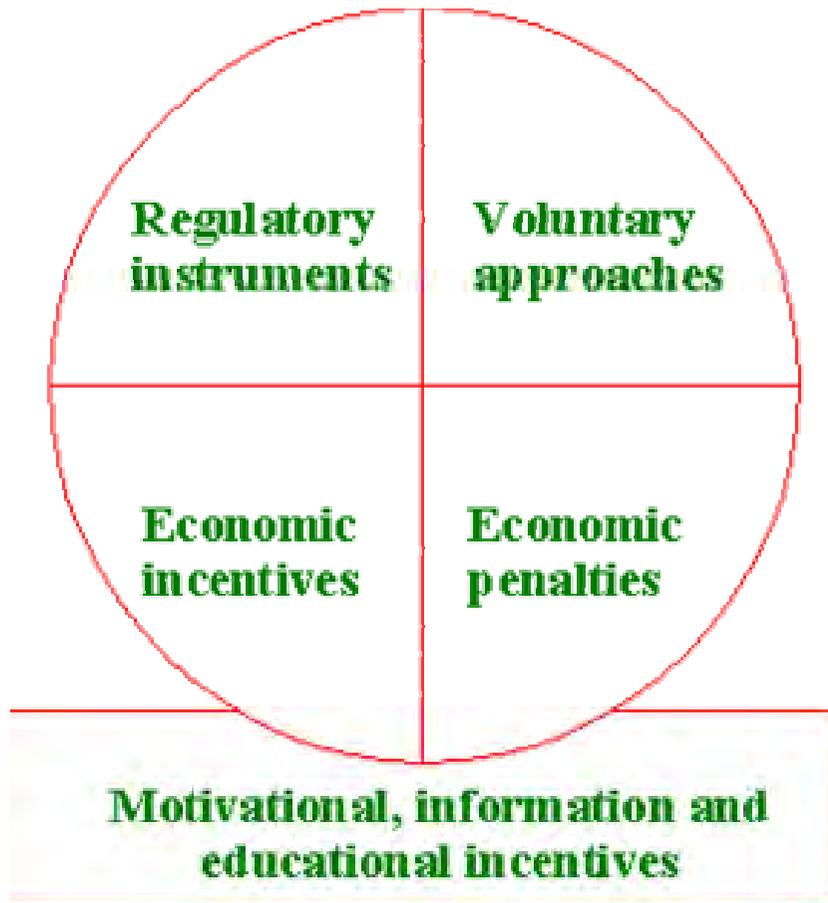
If no choice, when external forces prevail: e.g. fuel cost precludes much car use

Informed earlier adopters, making change voluntarily

	Automated <i>(high LNS, high BC)</i>		Reasoned <i>(low LNS, low BC)</i>	
Individually determined <i>(certainty, private, individualist CP, personal needs)</i>	Repetition - Classical conditioning theory - Operant conditioning theory 'I GOT USED TO IT'	(1)	Deliberation - Decision and choice theory - Theory of reasoned/planned behaviour (attitude and perceived control) LEARN SOLO	(2)
Social determined <i>(uncertainty, public visibility, egalitarian CP, social needs)</i>	Imitation - Social learning theory - Theory of normative conduct 'I FIT IN WITH OTHERS'	(3)	Social comparison - Social comparison theory - Relative deprivation theory - Theory of reasoned/planned behaviour (social norm) GROUPS	(4)

Table 5.4: A classification of eight major theories on human behaviour. LNS = level of need satisfaction, BC = Behavioural Control and CP = Cultural Perspective (based on Jager et al., 1997)

Interventions to promote change



- Use a **mix** of the 4.
- Underpinned by motivation, education and social incentives



Manaaki Whenua
Landcare Research

Where could one intervene?

Government and interest groups could applied behavioural models to influence travel habits and choices:

Changing **satisfaction of needs by other travel modes** - by service improvement (e.g. comfortable, quick buses or trains), & new products or services (e.g. technology providing bus arrival information on demand to walkers' phones; rideshare systems).

Changing **the relative resource demands of modes** - e.g. limit car road space (bus lanes, cycle lanes, shared-car-only lanes); rising fuel prices.

Changing **the abilities of travellers** - less depreciation allowance on cars within business taxation, education on alternative modes; a safe 'lift home from work' for car sharers if stranded.

Changing **the perspective people have on need satisfaction**

- social influences on motivation to walk, cycle, bus/rail.



Walking meets valid 'needs'

- **Participation** – it is potentially a social, interactive mode (main attraction of The Walking School Bus, for school children)
- **Freedom and Creativity** - see into houses and enjoy gardens, can change your pace and route spontaneously, call into shops, use mobile phone (handheld may soon be illegal in cars?)
- **Effective leisure** – contributes to fitness whilst you travel, and its free.



Manaaki Whenua
Landcare Research

Walking - Healthy exercise

- Humans need daily exercise such as walking, for heart fitness, bone strength, to resist diabetes and obesity.
- Car driving is also stress-generating (adrenaline, without 'flight or fight')
- Fewer cars = less fumes, less noise

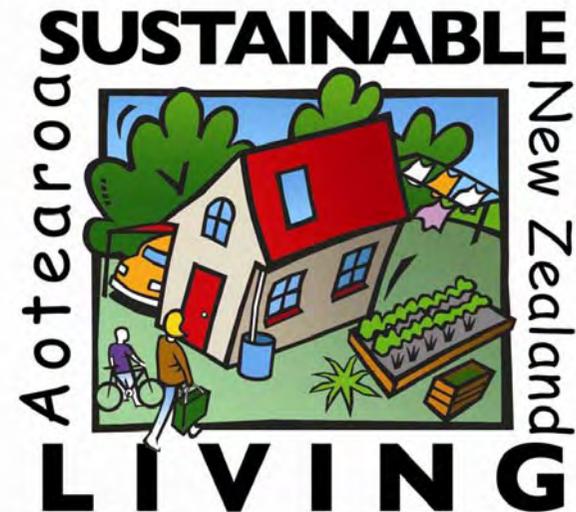


Manaaki Whenua
Landcare Research

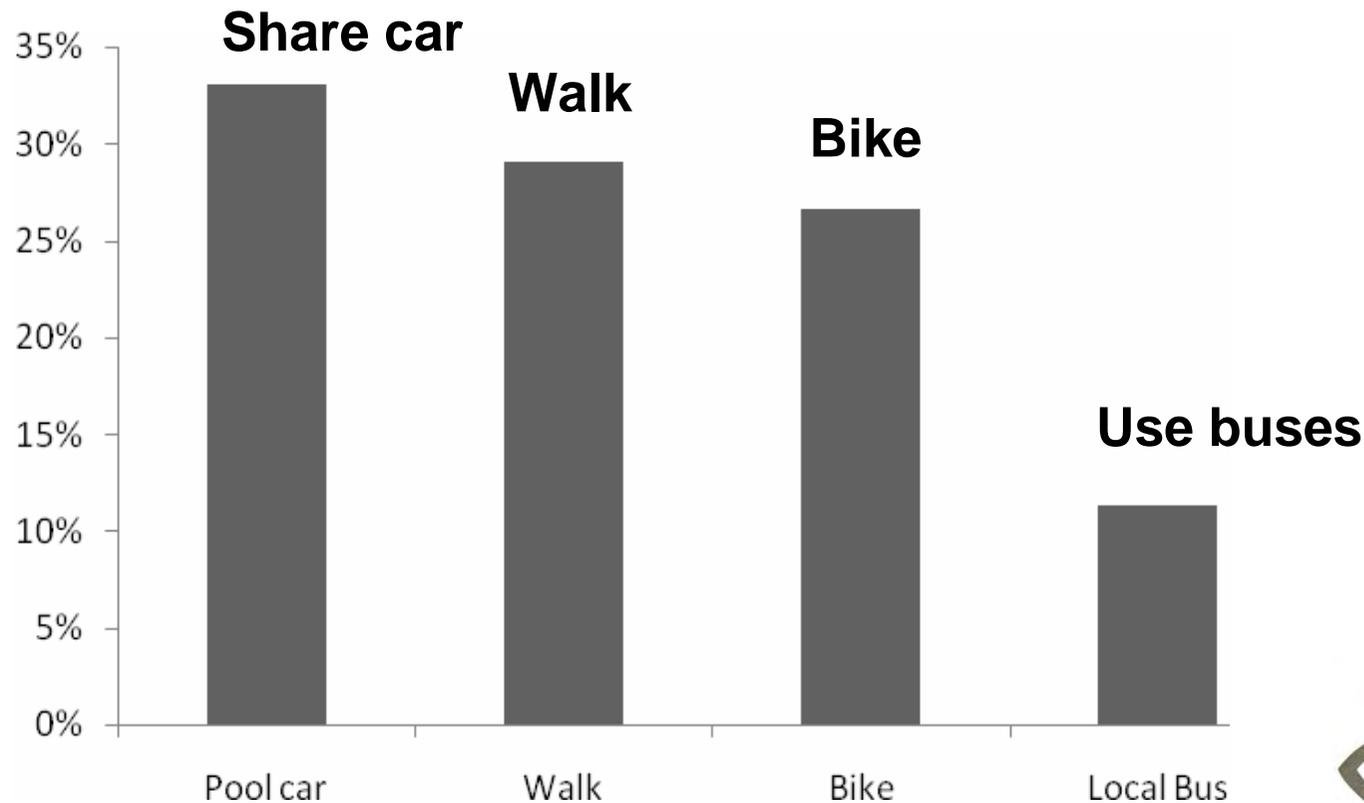
A community 'education for sustainability' programme

- Since 2001. National support with tutor & learner materials on 8 topics, inc. **travel**.
- Delivery through high schools, district and regional government; MfE supported.
- Annual update on CD.
- Backed by research.
- Newsletter & website:

www.sustainableliving.org.nz



After Sustainable Living course

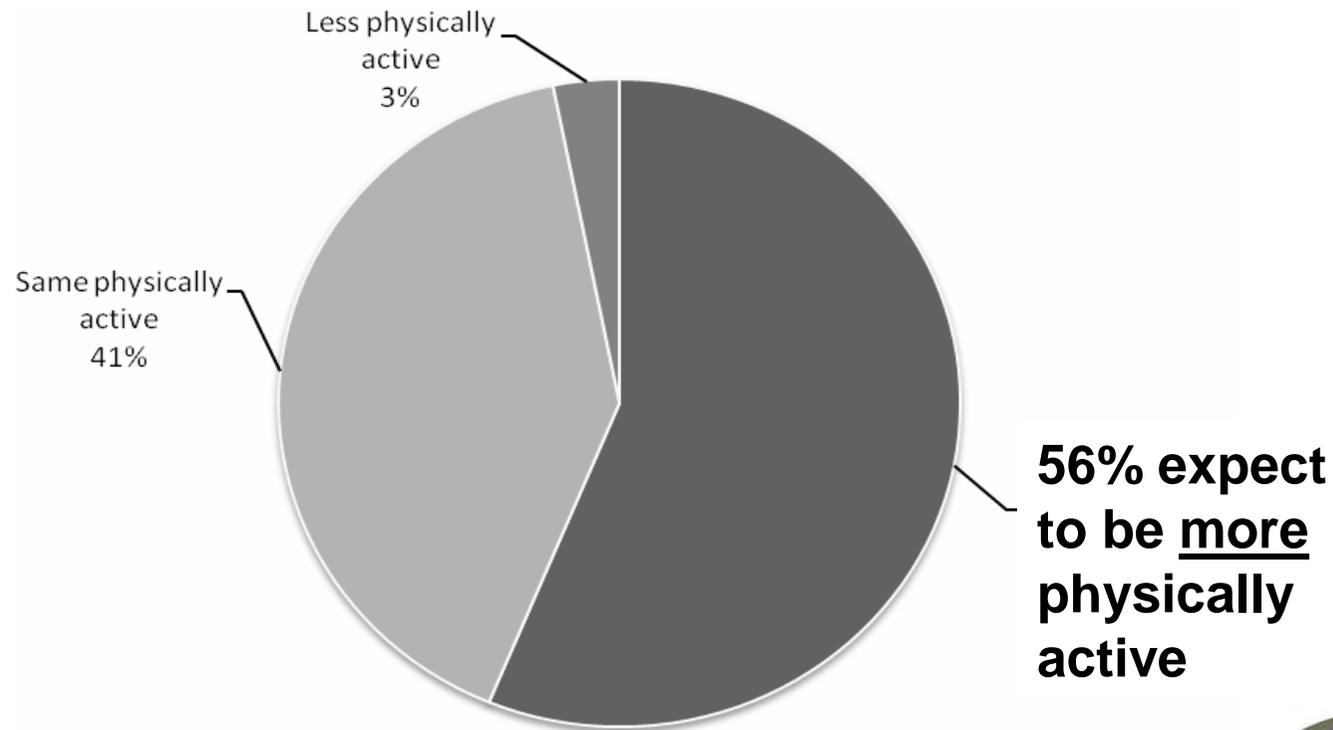


Transport – related actions chosen after 2007 SLP courses as ‘self reported’ through participant questionnaires.



Manaaki Whenua
Landcare Research

Activity level in next six months?



Anticipated activity in the 6 months after completing a 2007 Sustainable Living course – self reported on questionnaire



Manaaki Whenua
Landcare Research

Participant follow up survey

- Sample survey of 2006-7 Sustainable Living course participants, made in 2008 by phone (actions still self-reported, so may exaggerate?)
- Results: Car use reduced for short journeys, more trip-combining, more walking, more use of cycles, small extra use of public transport.
- 2008 fuel price rises “a good motivator” to now apply knowledge from course.



Manaaki Whenua
Landcare Research

Many programmes seek to affect 'internal' (behavioural) factors

- (Perth, Aus.) Individuals' trip planning, Travel Smart. (NZ) Eco-Kiwi travel planning visits.
- (NZ) Workplace travel planning, EECA
- Pledges? The Low Mileage Communities (USA) model adds together individuals into a neighbourhood commitment and tackles the 'tragedy of the commons/freeloader' issue.
- (UK) Carbon Reduction Action Groups as a value-led, measurement approach.
- (NZ & Aus) Sustainable Living courses, (UK & Holland) Global Action Plan.



Manaaki Whenua
Landcare Research

Reviewing overseas experiences

- The most commonly offered interventions will: provide information, explain consequences, offer exemplars, role models or champions.
- But, the most effective approaches: engage to prompt action practice, set specific goal or contract, encourage reflection/review/discussion.
- The least effective approaches were to induce regret or arouse fear. Guilt from using car does not make you a walker!



Overseas experiences agree:

- Exemplify the changes sought in Project
- Enable them by tackling institutional, home or other barriers that now deter change
- Engage people learning to change, via social process; aim to connect with their needs
- Encourage by economic and social incentives, 'contracts/pledges', reminders, & the celebration of success.



Manaaki Whenua
Landcare Research

Closing the Value-Action Gap

- For those with higher income and education, undertaking new behaviour depends on having 'locus of control': believing that you can make a difference in your own life (and maybe towards social capital of community, or for ecosystem)
- Until social norms move, as they have done for public recycling, for others it takes courage to change ahead of the crowd. Social influencers (= early adopters) help get this started, so intervene there first?



Manaaki Whenua
Landcare Research

Change in a 'messy' world

- Often there's not a single best course of action. Trade-offs and compromises required (e.g. using a car to take bulky items for recycling.)
- People need to feel that they have competence (incl. good information) and confidence to act in new ways – social learning supports this.
- Money saving & health are change motivators.
- But, commercial world may undermine, e.g. 'green' ad claims by car makers.
- And alternative modes must be visible.



Manaaki Whenua
Landcare Research

Infrastructure: the external context of a person's change of habit

- To create change in a majority, beyond the early adopters, the barriers of lack of mode choice, infrequency of bus & rail, walker/bus user discomforts, safety, and affordability (compared to formerly cheap motoring) need to be tackled alongside behavioural influencers.



Free city bus, crossing lights, bio-diesel bus with cycle carrier.



References

- Bruce James et al, Increasing Walking Trips through TravelSmart Individualized Marketing. World Transport Policy & Practice, Vol 7, No.4, 2001. pages 61-66
- Andrew Darnton, Driving Public Behaviours for Sustainable Lifestyles, 2004 for Defra, UK
- Defra/ONS Quality of Life Survey 2002 UK
- Research New Zealand (for MfE), Special Report - the General Public's views on 'sustainability', Wellington, Sept 2007 (survey of 500 over 15's across NZ, July 2007)
- Jager, Wander et al 1997
- Anja Kolmuss & Julian Agyeman August Mind the Gap in Environmental Education Research Vol 8, no 3, August 2002
- Zeibots M.E. 2003

Signs of the times?

