

HEALTH & TRANSPORT

Developing Sustainable Health - Transport

Today's lecture



- Sustainable Health – developed vs developing
- Integrated transport:
 - New developments such as Eco towns
 - Integrate into existing cities
 - Case studies: Stockholm and Delhi
- Changing face of technology and how this has influenced the travel decisions we make



A group of African children sitting in a circle, looking at the camera. The children are of various ages and are dressed in traditional or casual clothing. The background is a plain, light-colored wall.

HEALTH & SUSTAINABLE DEVELOPMENT

- A shift in Governmental thinking regarding the role of health in poverty reduction.
- Ill health creates and perpetuates poverty
- In turn – hampers economic and social degradation
- Millennium Declaration (2000) set goals and targets to eradicate poverty and enhance healthy and sustainable human development
- At a national level – strategies and planning tools implemented.

THE NEED FOR INTERSECTORAL ACTION

- Causes ill health:
 - Poverty
 - Large scale rapid industrialisation
 - Demographic change
 - Technological development
 - Lack of access to basic resources
 - Burden of infectious diseases
 - Non-communicable disease

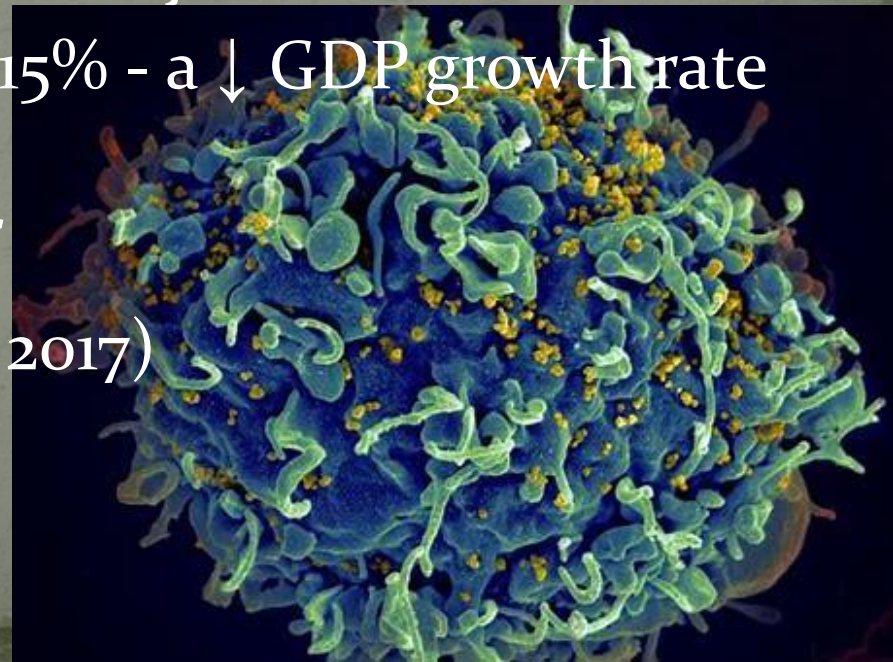


WHO's Corporate strategy

- Building healthy populations and combating ill health through 4 strategic approaches
 1. Reducing excess mortality and disability especially in poor and marginalized populations
 2. Promoting health lifestyles – reducing factors of risk
 3. Developing health systems that are financially fair
 4. Developing a health dimension to social, economic, environmental and development policy – HIA for example

Preventing Disease – HIV/AIDS

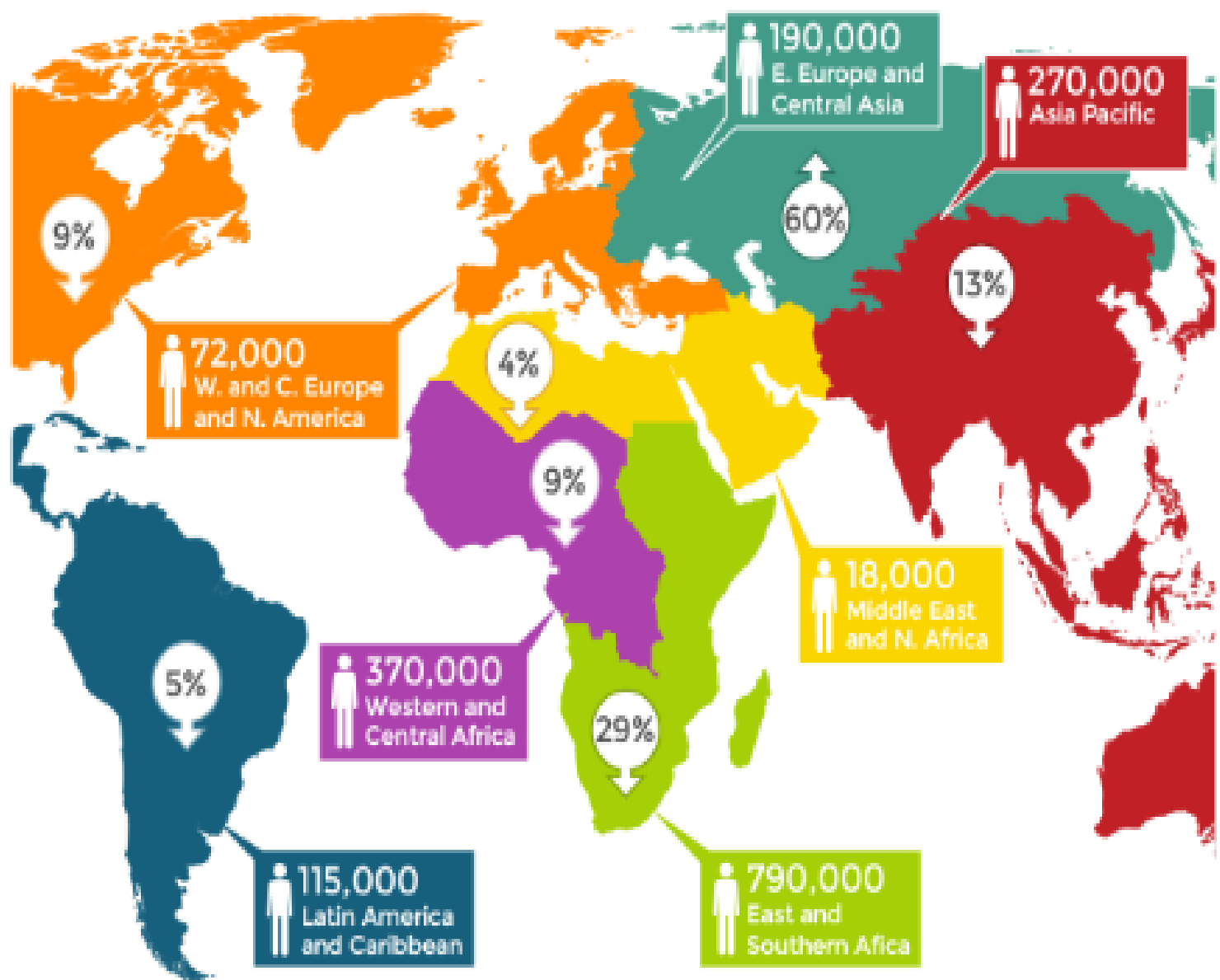
- The poorest billion are especially vulnerable to disease
- HIV/AIDS – 78 million adults and children, 95% of which are in developing countries
- >12 mill Africans have died, leaving many millions of orphans – poverty & vulnerability
- HIV prevalence rates of 10-15% - a ↓ GDP growth rate of 1% pa
- 2016 – 1 mill people died of HIV-related illnesses (Avert, 2017)



Number of new HIV infections in 2016 and change since 2010

1.8 million
people newly
infected in
2016 globally

Decrease in
number of new
infections across
the global
population each
year since 2010

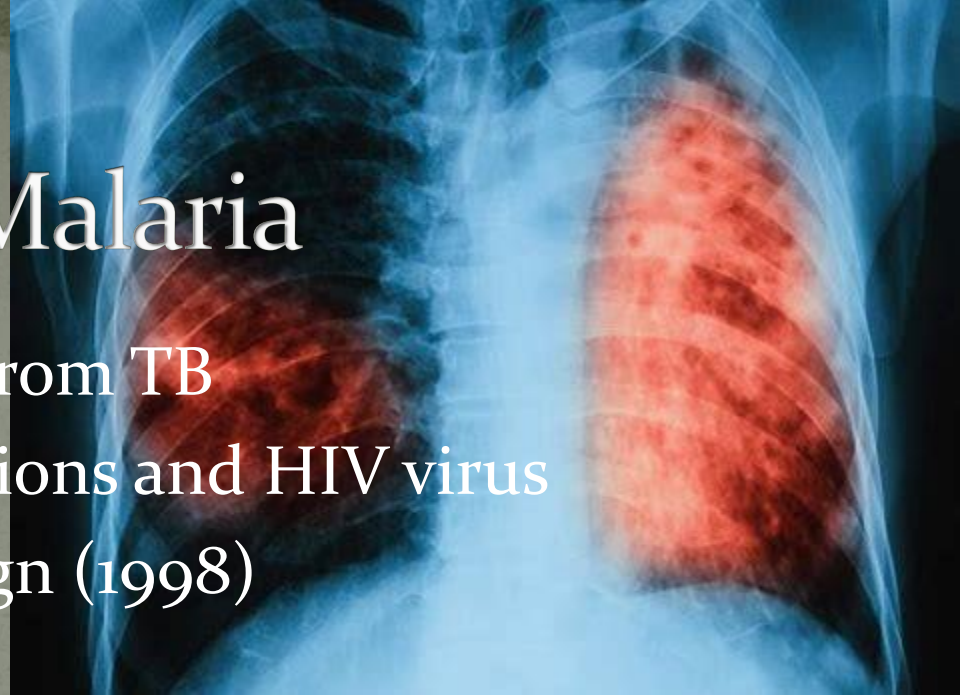


HIV/AIDS

- Proven successful measures:
 - Sexual health education in school
 - Accessible, inexpensive condoms
 - Immediate treatment of other sexually transmitted infections
 - Promotion of harm reduction – drug users
 - Access to counselling and testing
 - Acceleration of access to care and community-based support
 - Senegal & Thailand – dramatic reduction in infection rates



Tuberculosis and Malaria



- Approx 1.5 mill deaths pa from TB
- Poverty, poor living conditions and HIV virus
- WHO – “Stop TB” campaign (1998)
- Malaria – several hundred million cases each year
- Disease knowledge poor in some areas – Ghana
- Land –use changes can lead to an $\uparrow$ in disease prevalence
- Climate change – spread of malaria zones
- Drug resistance

Roll back Malaria (1998)



- Key elements for success:
 - Effective management of outbreaks
 - Rapid diagnosis and treatment
 - Cost effective means of preventing infection
 - Focused research to develop, test and introduce new products
 - Co-ordinated capacity with health sector and community support

Malaria in Vietnam

- Government – supply of free insecticide-treated bednets
- Use of high quality anti-malarial drugs
- Between 1992-1997 – 97% ↓ in mortality rates
- Number of cases ↓ 60%
- Major investment in training and disease reporting
- Use of mobile health workers in endemic areas



Childhood vaccines programmes & Access to birth control advice

- Antenatal care
- Immunisation
- Child nutrition guidance
- Population control – advice and access



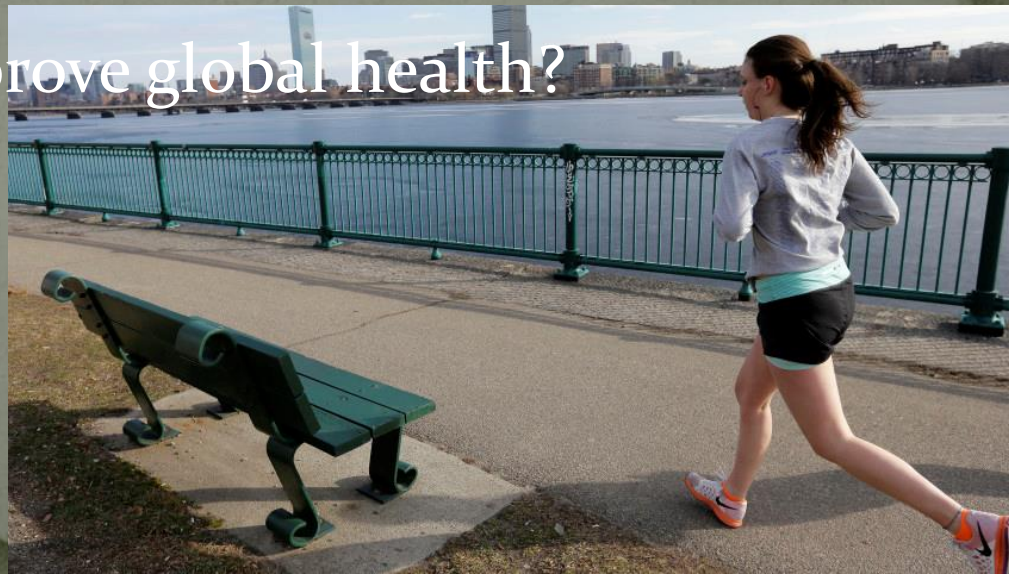
Non-communicable diseases

- Based on current trends, NCDs account for 73% of deaths and 60% of disease burden by 2020
- Cancer, cardiovascular disease, diabetes, obesity-related problems, chronic obstructive pulmonary disease
- Low and middle income countries
- Tobacco use, diet combined with sedentary lifestyle, air pollution, exposure of **chemicals**
- Affluence and technology have **also** contributed to lifestyle changes



Beyond the Health Sector

- Key determinants of health and disease lie outside direct control of the health sector
- Education, environment, housing, energy and transport sectors
- Transport systems
- Technological/behavioural influences.
- How can technology improve global health?



Homes for the future: more affordable, more sustainable (1997)

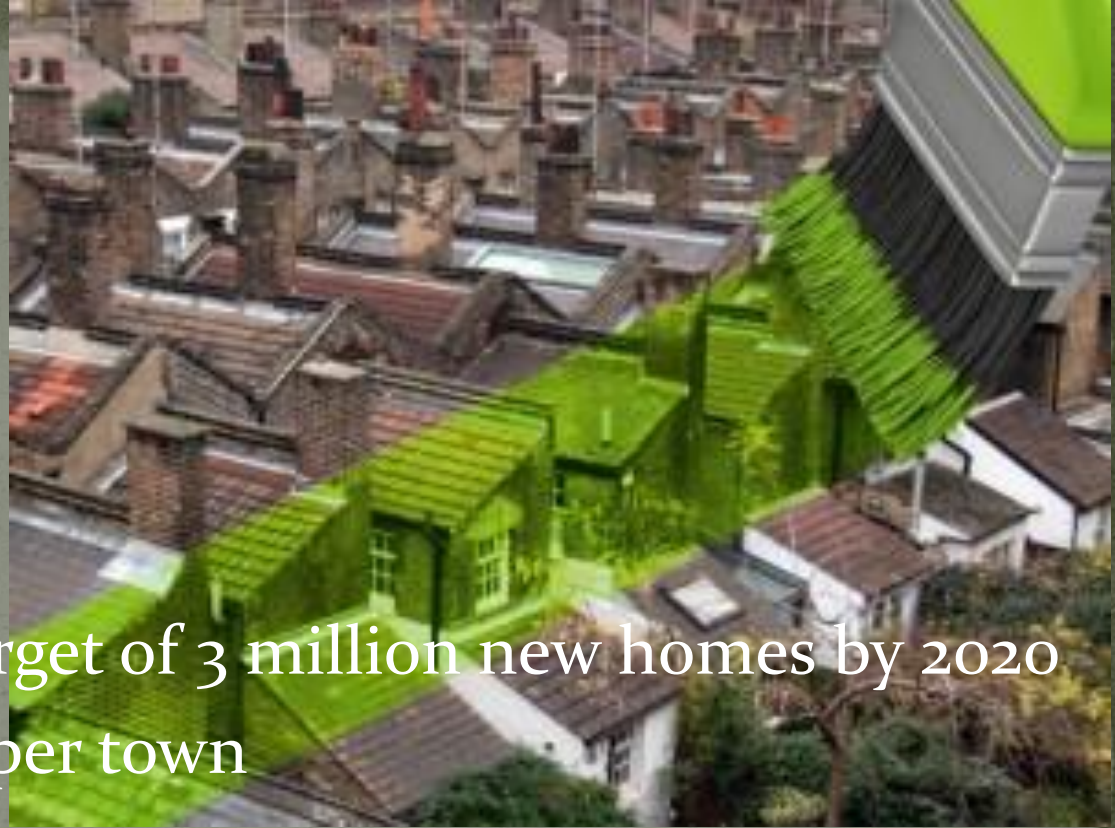


- Aim to build 3 million new homes by 2020
- Eco towns – exemplars for green development



- Include zero carbon technologies and a first rate public transport system

Eco-towns



- Do little to hit the target of 3 million new homes by 2020
- 5000-20,000 homes per town
- They do have ambitions:
 - Zero carbon buildings
 - Sustainable transport
 - Improved health
 - 40% open space
- Recession

Eco-town Concept

- Build 10 new towns
- 4 sites have been approved:
- North West Bicester (Oxon)
- St Austell (Cornwall)
- Rackheath (Norfolk)
- Whitehill Borden (Hants)



Select one as an example – how is it performing?

Britain's strategic planning needs from 2015

- Sir Rod Eddington commissioned
- How anticipated congestion would impact on Britain's economy
- 61 billion journeys per year
- 5% ↓ in travel could reduce cost of congestion by 2.5 billion
- Road pricing – without UK would need more transport infrastructure
- High-speed rail line - providing marginal benefits at excessive cost
- Additional runway capacity
- Outside London, demand for bus travel reduced but fares increasing

Good Planning and Design



- Transport accounts for 20-25% global energy use
- Promote genuine modal shift – credible alternatives
- Should be supported by management and regulatory measures – traffic regulation orders
- Double yellow lines; one way streets; banned turns; bus lanes – manage the flow of traffic

Good Planning and Design

- Eco towns should provide for employment opportunities & facilities – schools, health, centres etc on site.
- Consider connectivity to large urban areas, zones of employment, existing rail and road networks etc
- Provide services which will reduce the need to travel – broadband in homes etc



Designing Development in a sustainable way



- Layout of a development affects how people choose to travel
- Streets should be designed with pedestrians, cyclists and public transport in mind

Manual for Streets (2007)

Consider first  Consider last	Pedestrians
	Cyclists
	Public transport use
	Specialist service vehicles (emergency vehicles, waste etc)
	Other motor traffic

Does not have to be rigidly applied – provides guidance

Reducing car dependency

- Restrict car access at certain times of day
- Limit car spaces and /or charge for residential parking
- Preferential treatment to small or eco cars or scooters
- Car clubs



Promoting cycling and walking



- Safe routes
- Secure bike storage
- Footbridges
- Lighting
- Cycle centre in the development & community bike facilities (rentals)



Access to public transport: Train



- Need links to the railway network through:
 - Cycle tracks/footpaths
 - Regular shuttle bus
 - Re-routing/extension existing bus route
- Aylesbury Vale Parkway station – upgraded freight line – Community Infrastructure Fund & DfT
- Half hourly services at peak time; hourly off-peak

Access to public transport: Buses



- Within development:
 - Minibuses – to access local facilities
- Beyond development:
 - Accessible & reliable bus services
- To beat congestion:
 - Bus priority at traffic lights
 - Bus gates/lanes
 - Bus only roads
- Street furniture – stands, shelters etc need to be accessible, safe, secure and well lit
- Provision real-time info at stops

Funding

- Local and regional funding streams
- Growth Area Funding
- Private sector funding
- Community Infrastructure Fund - to fund transport schemes that would promote new housing and community growth



How to support a high take-up of sustainable transport options



- Ensure ticketing is quick & easy – joint bus/train tickets, smartcards etc
- Ensure interchanges between different modes is easy
- Provide high quality info
- Provide good marketing & advertising
- Engage local employers, schools & developers in travel planning
- Introduce cycling/walking initiatives – clubs, buddies, Bikeability training

Travel Vouchers cut car use

- Beaulieu Park, Chelmsford:
 - Residents moving in to new development were given a year's free bus pass for two people in each new house, together with integrated bus & rail information. Residents from existing development were given 3 months' free travel for each household and a discount on their renewed season ticket



Beaulieu Park



- Developer also funded extra morning and evening bus runs between town centre, railway station & Beaulieu Park
- Bus service became commercially viable in 2 1/2 years

(Dept for Transport, 2008) : Building Sustainable Transport into New Developments: A Menu of Options for Growth Points and Eco-towns

The 20-minute Neighbourhood



The 20 min. Neighbourhood

- Better aligned spatial and transport planning
- Easier for people to walk, cycle and use public transport
- 18/20 recent housing developments were built around the motor car (Sustrans, 2019)
- Tackle inequality



The 20-min Neighbourhood

Under the scheme, there are shops, schools, green spaces, culture, leisure and work, all within 20 minutes of an affordable home. Destinations are better linked, with more quality and safer walking, cycling and public transport connections, to reduce pollution and improve long-term health and well-being. (Sophie Howe, Future Generations Commissioner for Wales, 2020)

- **Pilot project in Melbourne**
- **Connected, low carbon and active communities**

The 20 min. Neighbourhood in Wales

- 20% tree cover in every town in Wales by 2030
- Schemes to ensure everyone has access to green space within 300m
- Working closer to home with a shorter working week – better work:life balance with opportunities for volunteering
- Tourism and local trade will benefit from more footfall



- Have a look at the Manifesto for the Future, produced by Sophie Howe (2020)

Is it achievable and if so in what timeframe?

Congestion in Delhi



- Between 1951 and 1961, population of Delhi ↑ from 1.7 to 2.7 million
- Restrict further city centre density by building a 1.6km green belt & diverting surplus population to adjacent 'ring towns'
- City was zoned – residential & work place segregated
- Between 1957 and 2002, car ownership ↑ 60 times
- Provision of wide roads to ↓ congestion
- Induced or latent demand!

Delhi vs Stockholm

- Delhi has a population density 34 times that of Stockholm
- Average income in Stockholm is 4 times that of Delhi
- Car ownership is 7.5 times greater in Stockholm
- When including motorcycle ownership, % families owning a personal motorised vehicle is only 1.5 times higher in Stockholm than Delhi despite income differential
- Availability of taxis is 2 times greater in Delhi
- More desirable transport situation in Delhi??
- Threat to life due to traffic accidents and air pollution is far higher in Delhi
- How are both cities moving towards a more sustainable future?

Delhi

- Modern vehicles share road with non-motorised vehicles
- Cyclists, pedestrians and pavement dwellers often involved in accidents
- 2005, a rail-based metro – attracted 0.4 million per day
- Bus rapid transport (BRT) – priority to take away road space from cars
- Introduced pedestrian crossings
- 1st week – signal failures & drivers failing to stop or using designated bus lane



Traffic Stockholm

- “ Both as a toy and a useful thing, [the car] is difficult to replace with something else. Only some decades ago, ownership was the privilege of a few, a class distinction. It is not like that any longer. Now there are car owners in all levels of society and we shall soon eliminate the remaining barriers “. (Andersson, 1956:3)
- Late 1980's Swedish Prime Minister Ingvar Carlsson:
 - “the car is a human right”



Stockholm



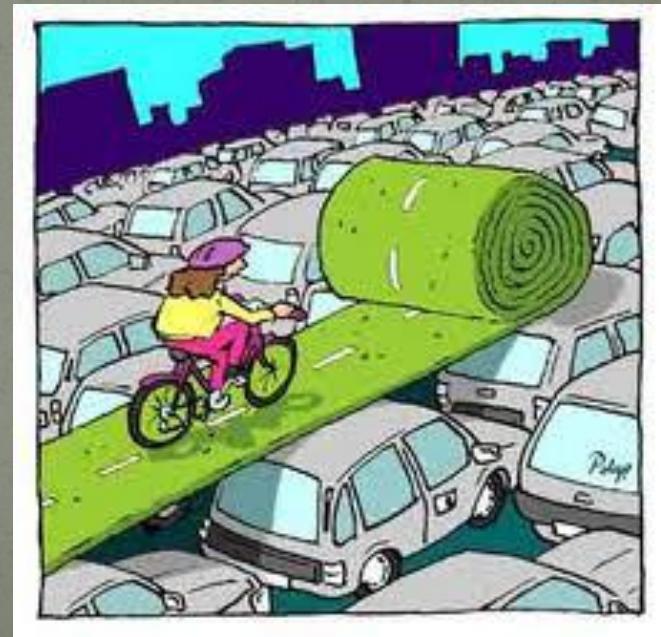
- 1970's Club of Rome debate "Limits to Growth" – concern
- 1992 (Rio) Carl Bildt (Swedish Prime Minister):
 - Technical development will solve the problems of global car use..... But China should consider developing public transport rather than mass motorisation"

Stockholm

- 1950 – underground train system
- Road tolls – 1992 – later political pressure caused a turnaround
- 2002 – congestion charge
- Cut traffic flows, access was improved & journey times were reduced.
- ↓ 22% cars; 21% light lorries; 13% lorries
- CO₂ and particulate emissions ↓ 8 -14%
- Health benefits
- Marginal impact on noise levels
- Public finances – profit of 980 million USD/yr – investments, operating & maintenance costs paid off in 4 yrs – 197 new buses and 16 new bus lines



- Stockholm is introducing congestion taxes while Delhi is balancing the need for safe walking and biking along with affordable public transport. i.e. Becoming a modern world class city. The dream of owning one's first car however is taking precedence. In contrast, Stockholm's occupants are concerning themselves with worries about sustainability, health and global warming.



Boston

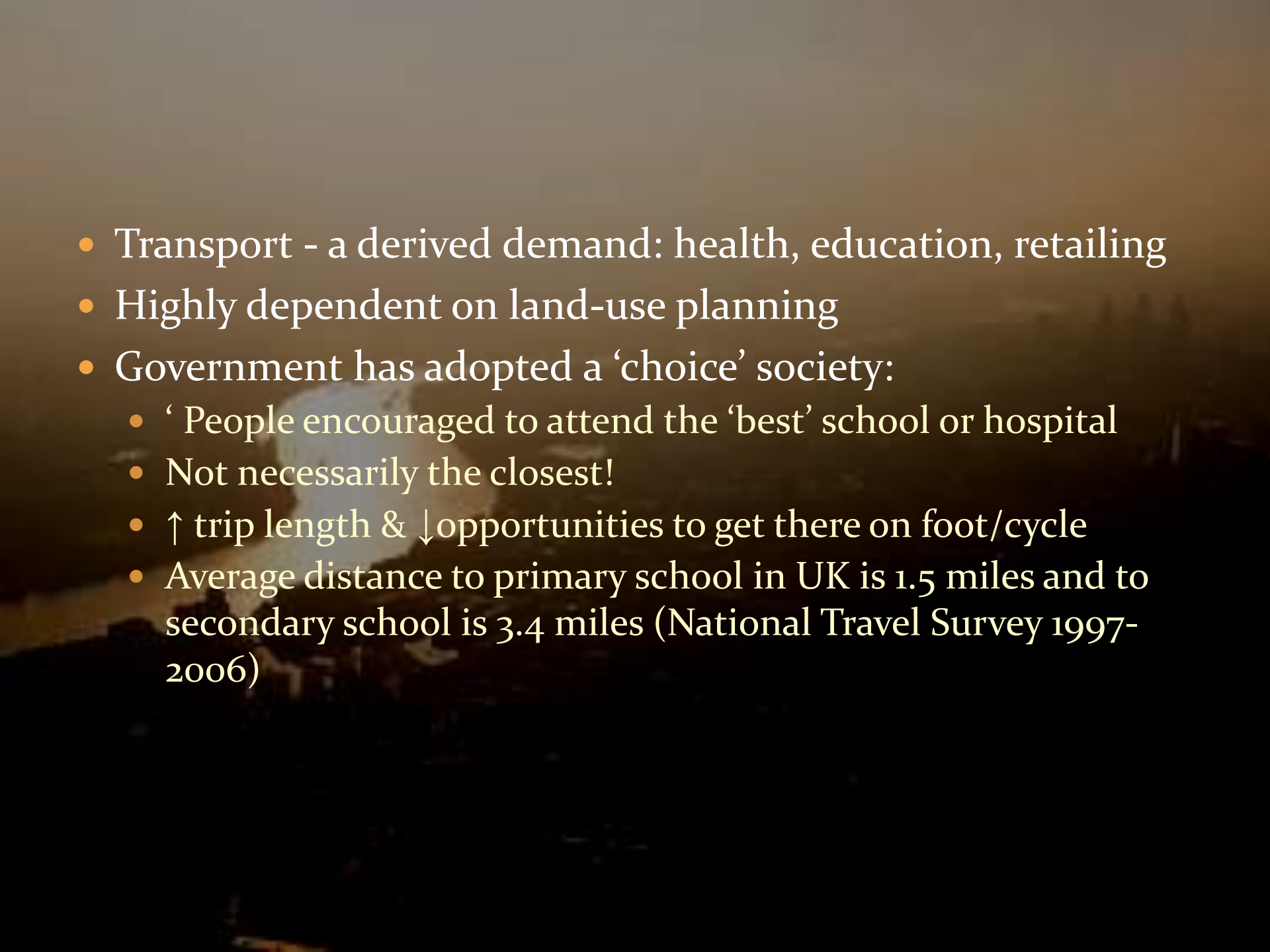


- Walking cities
- 'Freedom trail'
- 7th highest % of walking commuters
- Car pools
- Duck tours - amphibious bus tours
- The "Big Dig"
- Health- one of the top 10 cities in the world



Student Research

Evaluate the case for HS2 rail link
versus congestion charging

- 
- Transport - a derived demand: health, education, retailing
 - Highly dependent on land-use planning
 - Government has adopted a 'choice' society:
 - ' People encouraged to attend the 'best' school or hospital
 - Not necessarily the closest!
 - ↑ trip length & ↓ opportunities to get there on foot/cycle
 - Average distance to primary school in UK is 1.5 miles and to secondary school is 3.4 miles (National Travel Survey 1997-2006)

New school in Corby

- £30 million new school
- Academy – out of town
- Replaced a local school in town
- Bus services needed to transport pupils costs an additional £300,000 pa
- Not attributed to original development budget



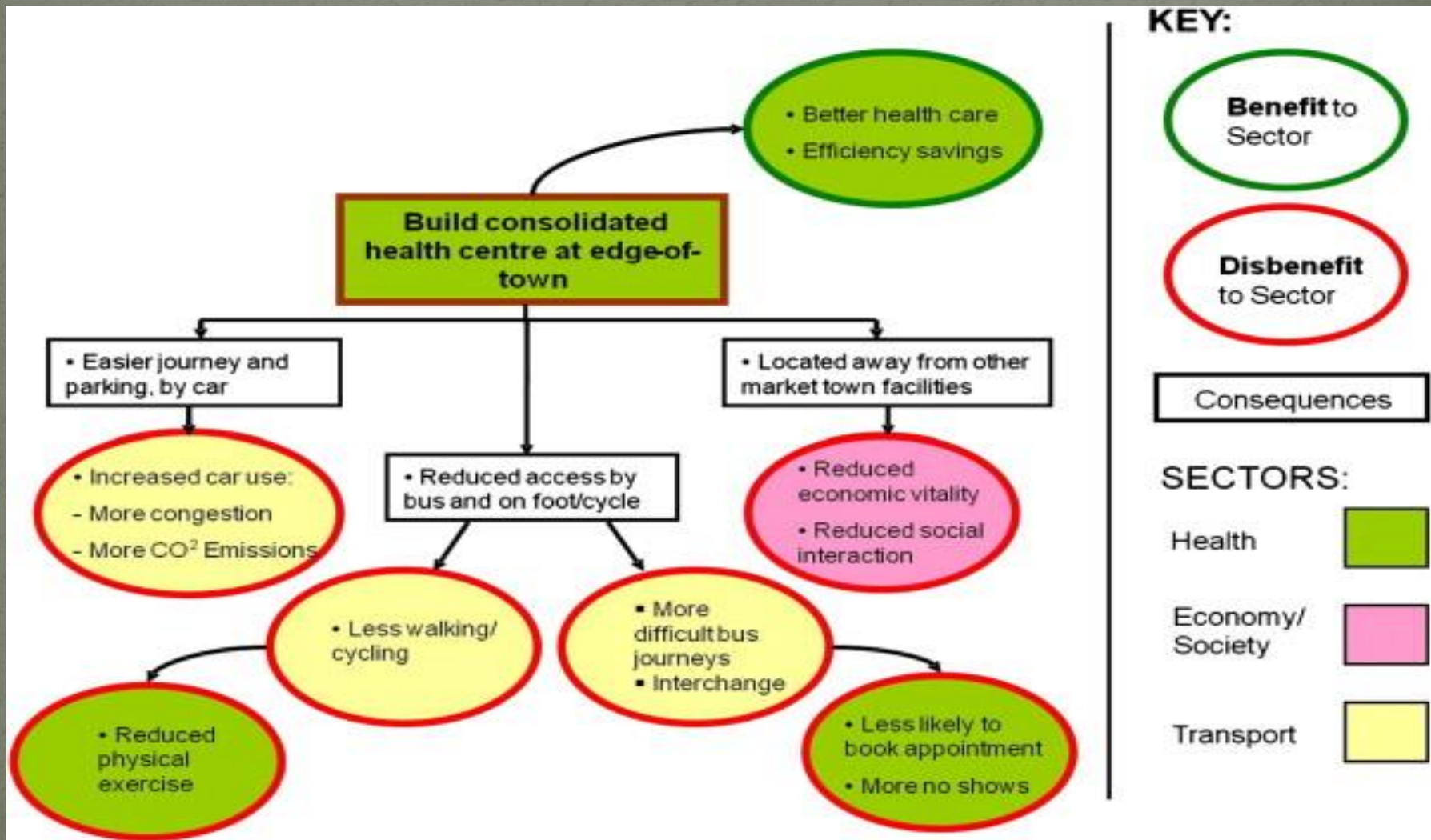
Example: Consolidating health facilities

- Potential consequences of merging a doctor's surgery, dental surgery & opticians
- Situated at a purpose-built facility on edge of built-up area
- Benefits:
 - Better health care
 - Modern facilities
 - Cost savings for health authority

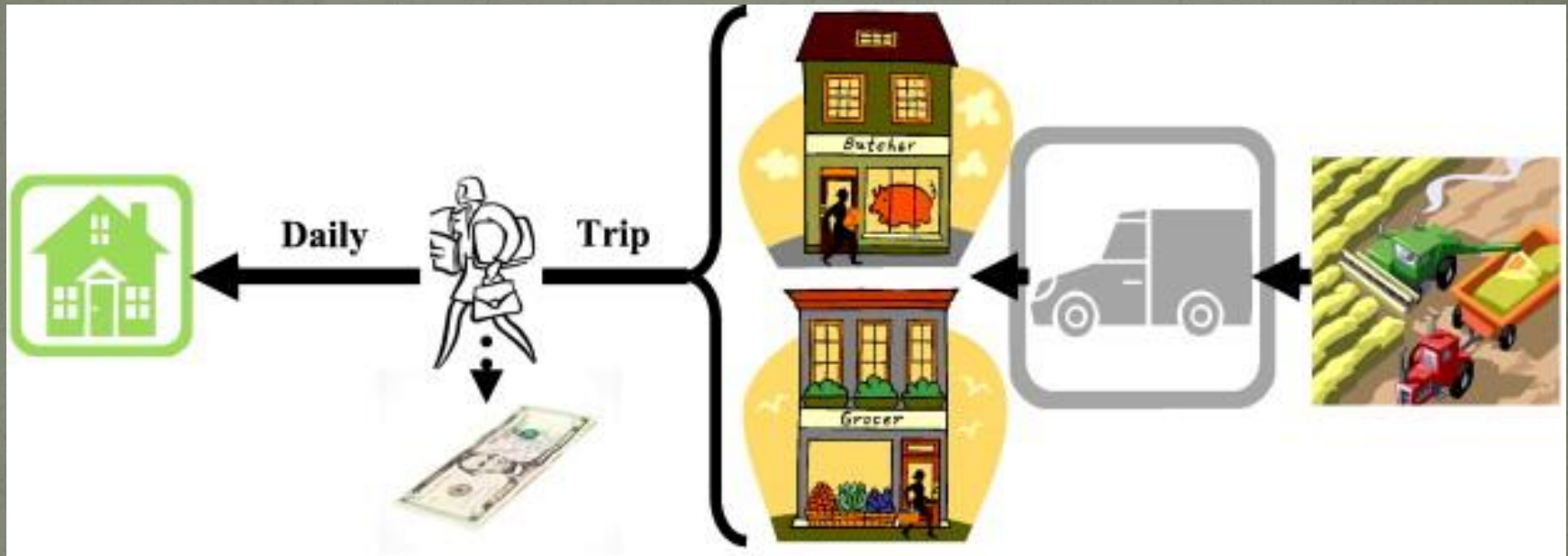
Negative Consequences

- More difficult access on foot/cycle – reduced participants & increase in car use
- Public transport users – change vehicle or longer walk from town centre
- Higher CO₂ emissions and local congestion
- Town centre business suffers from loss of trade
- Indirect effects
 - Reduced physical activity
 - ‘No shows’
 - Disincentive to book appointment in first place
 - Reduced social interaction

Wider consequences of consolidating health facilities

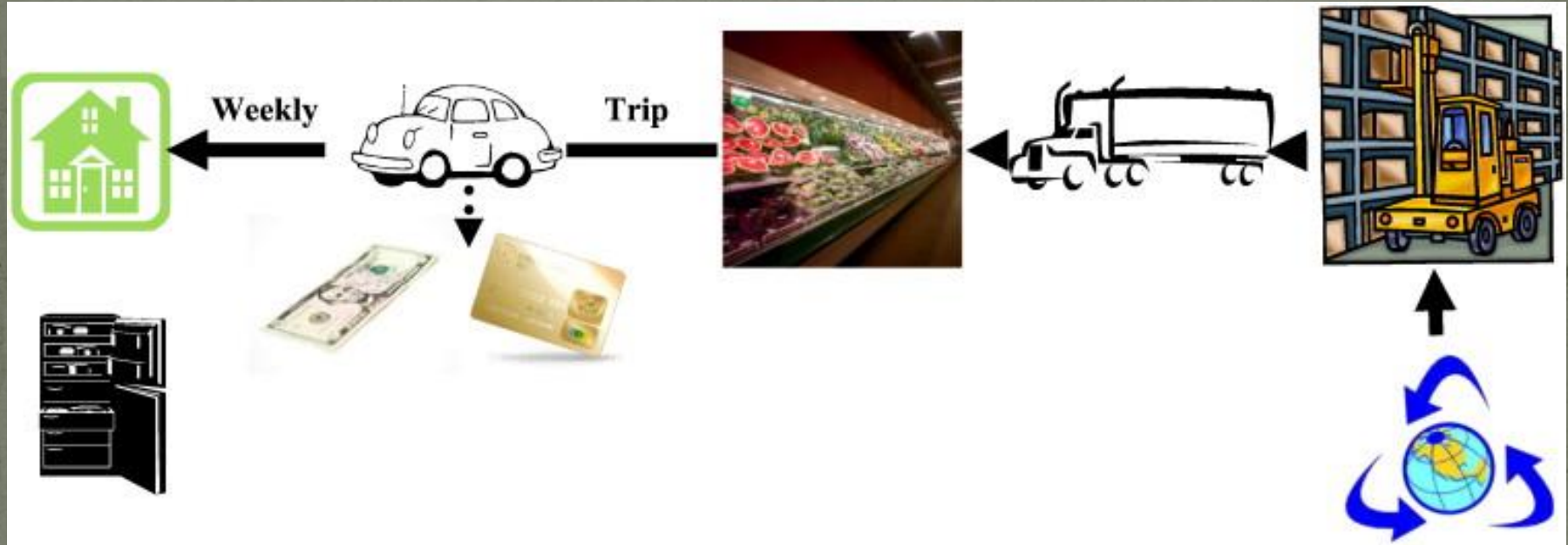


First half of the 20th century



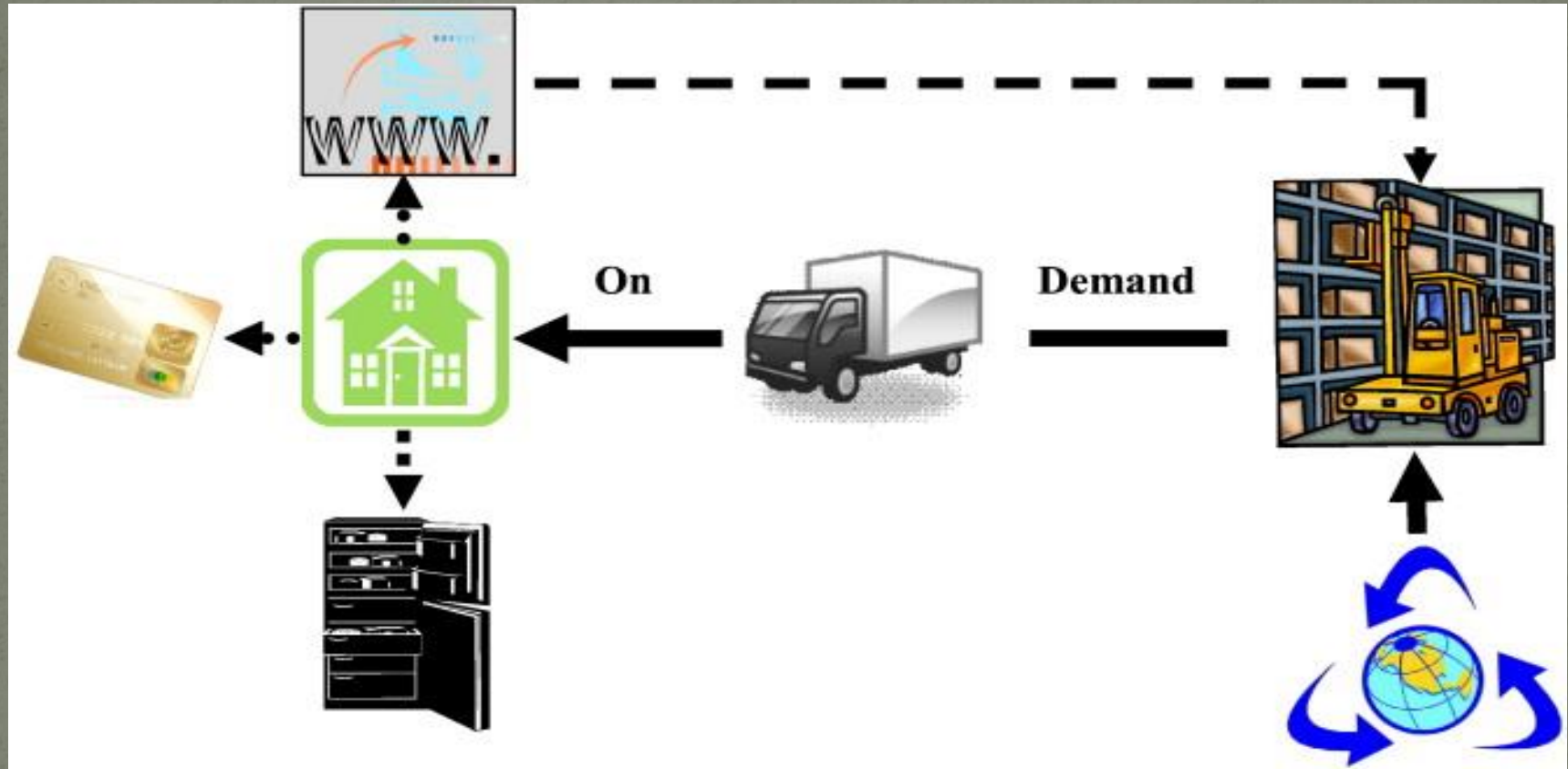
- Small, local family-owned shops
- Constructed local materials
- Local sourcing largely
- Shopped daily
- Shopped in person & paid in cash

End of 20th century



- Visit one larger supermarket
- Very large building made from steel-frame & cladding
- Located at edge of town/near high speed network
- Weekly shopping
- Sourced from around world – global communications & logistics
- Sufficient domestic storage
- Paid by cash or credit card

Emerging shopping behaviour



- Online shopping – Broadband
- Deliveries from supermarket distribution centre
- Sourced globally
- Paid by credit card

- “Without advances in building construction materials, global logistics and associated communications, and particularly in cooling/freezing technologies, then most shopping trips would still be likely to be made on a daily basis to local shops – regardless of the availability of a car”

(Jones, 2012:43)

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**“I guess it’s been a while since you’ve shopped off-line.
It’s not necessary to double-click my nose!”**

Socio-technical cluster



- Invention of the fridge freezer
- Availability of electricity
- The switch to home delivery is driven by :
 - Availability of high speed Broadband
 - Facility for electronic payment by credit card
- Societal behaviour is changing & the transport planning needs to adapt alongside

Food for thought

- Sustainable health is multi dimensional
- There are different challenges in the developing world compared with the developed world
- The causes and therefore the solutions need to come from a joined-up approach
- Changing human behaviour is challenging (transport) therefore authorities have to make the alternatives viable, affordable and efficient
- Where will technology take us on the next 50 years?

Student Research Summary:

- Is technology the answer to better global health?
- Have a look at the Manifesto for the Future, produced by Sophie Howe (2020). Is it achievable and if so in what timeframe?
- Evaluate the case for HS2 versus congestion charging. Which would be more suited to a sustainable future?

