

## **WALKABILITY AND PEDESTRIAN FACILITIES IN ASIAN CITIES**

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### **SUMMARY**

In the age of rapid motorisation, the pedestrian has been left far behind. Huge investments are directed towards building infrastructure for motorized modes, while little or no planning is provided to non motorized modes of travel such as walking and cycling, which have been the traditional modes of travel. Increased urban sprawl, improved economic conditions and neglect of pedestrian facilities have all led to increase in the number of motorized vehicles, which have resulted in our cities with high levels of pollution, congestion, road accidents, social inequality, poor mobility, and deterioration of quality of life. Asian cities are set to explode with over 55% of population projected to live in them by 2030. This poses a huge challenge to the concept of sustainability and livability.

Since stake holders continue to widen roads, build more flyovers without approaching the problem with a holistic solution, a paradigm shift has to be brought in improve the facilities for pedestrians which would have a cascading positive effect on the quality of life. A walkability study was carried out in 21 Asian cities by the Clean Air Initiative for Asian Cities, which included a) Field survey of the existing pedestrian facilities; b) Pedestrian interviews to understand their preferences, c) Assessment of policies and institutions that determine walking. The objective of the study was to benchmark the various parameters of walking and arrive at a 'walkability score' and highlight the conditions to the stakeholders, policy makers and the public.

Over 400 km of length was surveyed in the field walkability which constituted 9 parameters such as obstruction, disability infrastructure, availability of crossings, modal conflict points, availability of walking paths, grade crossing safety, motorist behavior, amenities and safety from crime. Since areas were carefully chosen and divided into four land use types viz. residential, educational, commercial and transport terminals, the survey can be considered to be a fair representation of the cities. The pedestrian interview captured the priorities for improvement of 6500 pedestrians. Surveyors interviewed pedestrians during peak hours and in local language to determine their preferences on access, crossings, safety etc. Travel and social characteristic details such as age, gender, income, mode, and distance of travel and time spent, exposure to pollution, vehicle ownership were also captured. Policies and institutions concerning pedestrians were studied which included stakeholder plans, available literature, pedestrian designs, relevance of national policies in the local context etc.

The findings of the survey would need the support of the various stakeholders, institutions and the policy makers to recognize pedestrians as part of the road space to strengthen policies and improve facilities to increase pedestrian mode share, which has been on the decline. Improvement of pedestrian facilities need not involve expensive skywalks and subways (which may not be disabled friendly or safe) but has economical facilities of level, clean, wide footpaths with safe crossing points. Awareness among motorists and pedestrians on road safety is essential to eliminate accidents and encourage more people back on the roads not as motorists but as pedestrians.

Keywords: Walkability, mobility, pedestrians, NMT, Asian cities

## **PURPOSE** <sup>[1]</sup>

The purpose of the study can be classified as both a top down and bottom up approach to understand and improve pedestrian facilities and conditions. The evaluation of pedestrian facilities with the help of the walkability tool provides a score to benchmark cities, which gives a direction to stake holders to focus their attention and investments. The pedestrian preference survey that captured the requirement of pedestrians was used to create awareness among the public. Third, a policy review of the countries where the surveys were carried out to understand the importance mobility plans envisaged for pedestrians.

## **METHODOLOGY** <sup>[2]</sup>

As mentioned above, the methodology can be classified into three parts

- i) Field walkability survey, ii) Pedestrian preference survey, iii) Policy review

### 3.1 Field walkability survey

For the field walkability survey, high pedestrian volume areas were selected based on initial survey or suggestions from local partners. Route assessments were carried out to determine pedestrian origin and destination. Different land use patterns such as residential, commercial, educational and public transport areas were covered to obtain a representative sample of the city. Field surveyors were trained to rate the parameters and were shown photographs of different conditions to give them a better understanding.

The field walkability was assessed using a modified version of the Global Walkability Index GWI developed by Holly Crambeck, for the World Bank. <sup>[3]</sup> The assessment was qualitative, covering nine parameters as listed in table 1.

	<b>Parameter</b>	<b>Description</b>
1	Walking path modal conflict	Extent of conflict between pedestrians and other modes, including cycles and motorized modes
2	Availability of walking paths	Need for the availability and condition of walking paths
3	Availability of crossing points	Availability and distance between crossing points, to know if pedestrians tend to jaywalk when the distance between crossings is far
4	Grade crossing safety	Exposure to other modes while crossing, time for crossing, time for waiting
5	Motorist behavior	Behavior of motorists towards pedestrians
6	Amenities	Availability of pedestrian amenities such as benches, shade, toilets, lights etc which enhance the user experience
7	Disability infrastructure	The availability, position, maintenance of facilities for the disabled
8	Obstructions	Presence of permanent, temporary obstructions which affect the effective width of the walkways
9	Security from crime	Feeling of security on the roads

Table 1: Parameters assessed in field walkability survey

Field surveyors were asked to rate the walkways or roadways for each of the parameter with scores ranging from 1 to 5, (5 being the highest). The average for each of the parameter was converted into a score of out of 100. Therefore each land use type as well as each parameter had a score which provided showed where each land use type and each parameter in those land use fared. The final score for the city was derived by averaging the land use scores.

An important factor in the assessment is that it does not consider the pedestrian volume in the ratings, to avoid the bias that would be created in areas where good walkability conditions exist while the pedestrian volume is low.

### **3.2 Pedestrian Preference Survey**

Pedestrian interviews were carried out by the enumerators collecting travel, social characteristics as well as their preferences. In most cases pedestrians waiting for public transport were interviewed, as it was difficult to stop people who were walking and interview them. Both the pedestrian preference and the field walkability survey were carried out between 3 and 5 pm to capture the afternoon and evening peak. Over 6500 pedestrians were interviewed in 21 cities. Questions also included improvements they would like to see, their exposure to pollution etc.

### **3.3 Policy and Institutional survey**

A general survey of the policies, guidelines, institutions and their resources was carried out, with respect to pedestrians, particularly in the countries and cities where the survey was carried out.

## **RESULTS <sup>[4]</sup>**

### **4.1 Field Walkability survey**

In the field walkability survey, over 400 km of walkways were surveyed in all land use types. Commercial areas scored the highest 61 followed by residential, educational areas and public transport areas.

Commercial areas: The results for Metro Manila and Kathmandu are contrasting. While Metro Manila (78) had high ratings in the commercial business districts, Kathmandu (44) had lower ratings. Metro Manila had low conflicts with other modes and excellent crossing facilities, which could be due to strict enforcement by the Metro Manila Development Authority (MMDA) and/or the business district associations. Due to this

strict enforcement, pedestrians are being corralled into very narrow spaces to ensure that vehicle flow is not affected, thus creating a “pedestrian traffic jam.” It is also important to note that good walkability around some commercial areas is by no means a reflection of walkability across the city. In almost all of the cities, there are numerous street vendors or hawkers along sidewalks and footpaths in commercial areas.

Kathmandu, on the other hand, had very poor ratings for transport-disadvantaged people and very poor infrastructure with many obstructions. There was no exclusive space offered for hawkers or street vendors. But the ratings for security from crime were high, indicating the presence of traffic or police enforcers in the area.

**Residential areas:** The average score was 57 with Hong Kong scoring the highest with 74. The reasons being it had adequate footpaths with few obstructions, positive motorist behavior and good security from crime. Jakarta 44 scored more than Chennai which came in last with 42. Ho Chi Minh City (HCMC) offered the best amenities, such as shade. This is encouraging as the city is constructing mass transit facilities. With low traffic volume, availability of crossing points scored high in residential areas (74), but disability infrastructure remained inadequate as in other areas, scoring only 36.

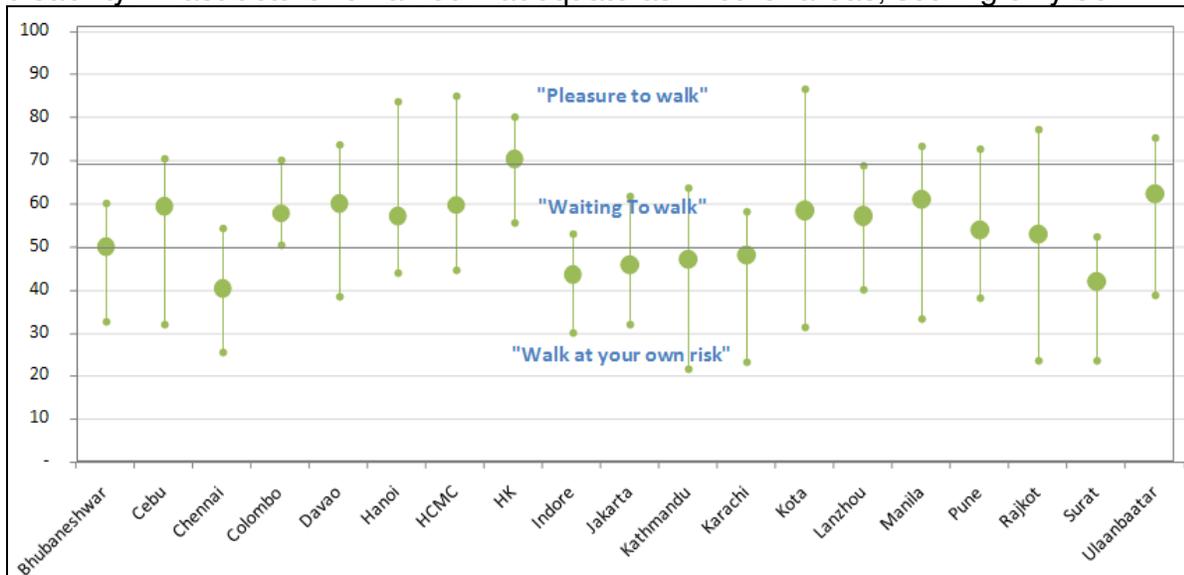


Fig 1: Field walkability scores of Asian Cities

**Educational areas:** Educational areas scored an average of 55; this area needs attention since school children are prone to accidents. Modal conflict scored highest with 65 indicating that traffic calming measures have been made to reduce vehicle speeds in the neighborhoods. In Davao, many road stretches are unpaved and are used as parking areas, forcing pedestrians to walk on the road. Even in cases where the sidewalks are present, these are used either by motorists to park or by street vendors, especially near schools where students are their customers. Hong Kong scored the highest again with 73 out of 100.

**Public Transport Areas:** Public transport accessibility scored the poorest across all Asian cities. Despite the importance accorded to public transport, the accessibility to bus stops and railway stations remain poor, with an average score of 54. Disability infrastructure was again the poorest rated parameter with a score of just 42. Kota in India scored high in this section (71), as the transport terminal lies in the cantonment area, developed by the military. The city of Karachi in Pakistan received the lowest score of 35. Ulaanbaatar also scored high in some of the parameters such as security from crime, walking path modal conflict.

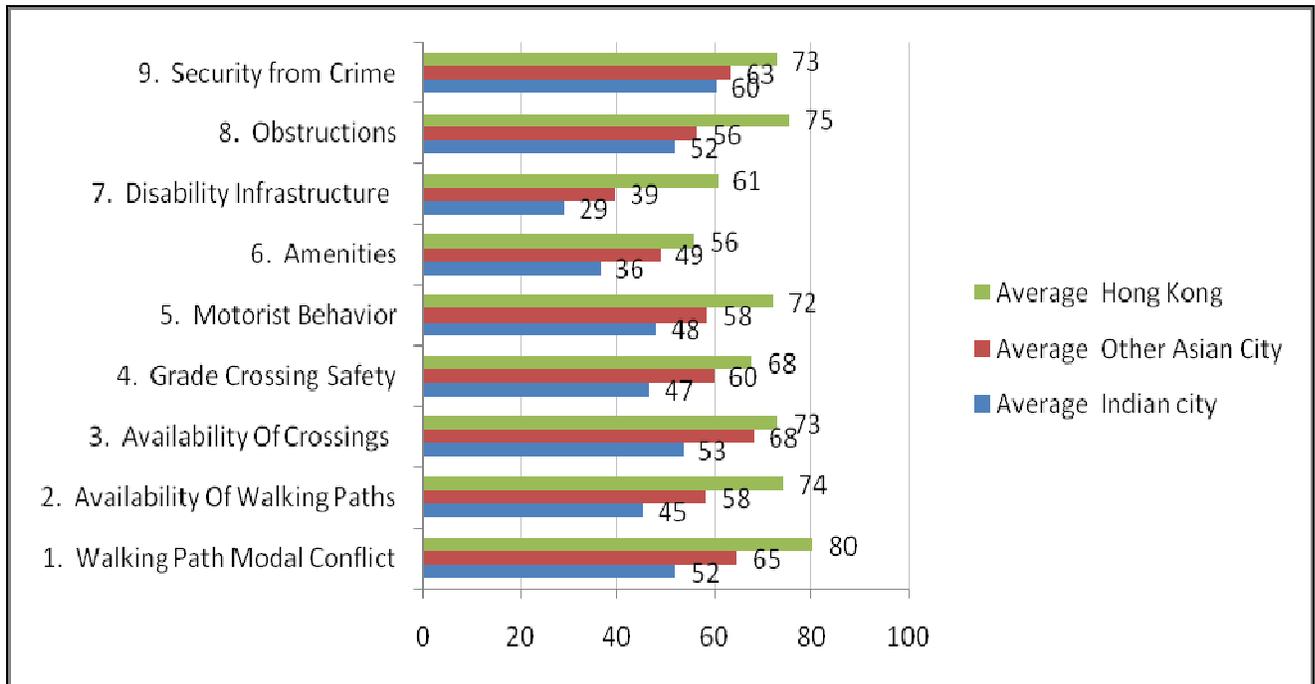


Fig 2: Field walkability survey parameter wise score comparing Hong Kong with other Asian cities and Indian cities

#### 4.2 Pedestrian Preference surveys

This was carried out to understand what pedestrians wanted in terms of improvement and why they would call a walkable area good. A minimum sample of 50 was chosen at each area and the surveyors used local language to elicit better response and comprehension from the interviewees. The figure 2 shows the number of people interviewed in each city.

The profile of the respondents was almost equal in gender with 55% male and 45% female. The age group of 15 to 30 years made up 65%. Almost 30% of the respondents came from captive users of public transport and NMT as they owned no vehicles.

A huge 42% felt that the facilities were ‘very bad to bad’; with only 16% feeling that the facilities were ‘good to very good’ as seen in fig 3.

It was remarkable to note that almost 65% of the respondents had a travel distance of less than 6km and travel times of under 30 minutes. With an improvement in facilities,

all these trips can be converted into pedestrian or cycling trips, greatly improving air quality while reducing congestion. Figure 1 shows these figures

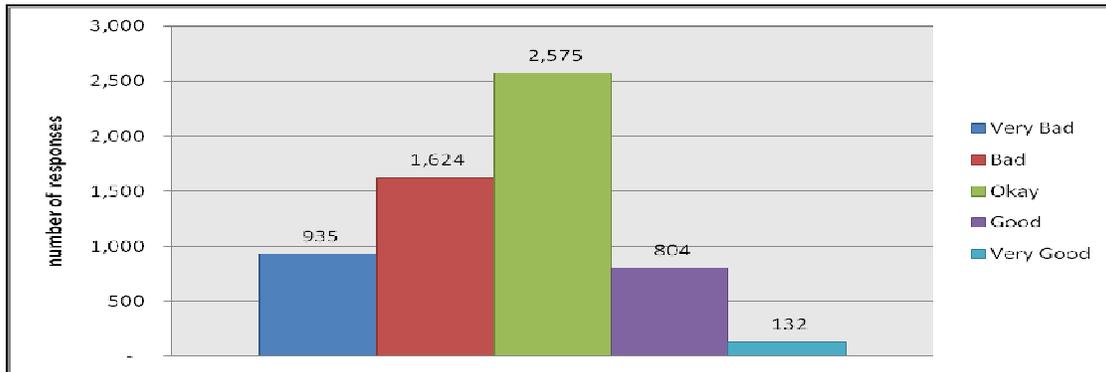


Fig 3: Pedestrian rating of facilities

. The wish list of pedestrians was as follows, as seen in fig 4

- i) Clean, level and wide footpath
- ii) Removal of obstacles including parked vehicles,
- iii) Reduced or slower traffic on the roads
- iv) More crossing points
- v) Easy access for people with disabilities
- vi) Improved street lighting

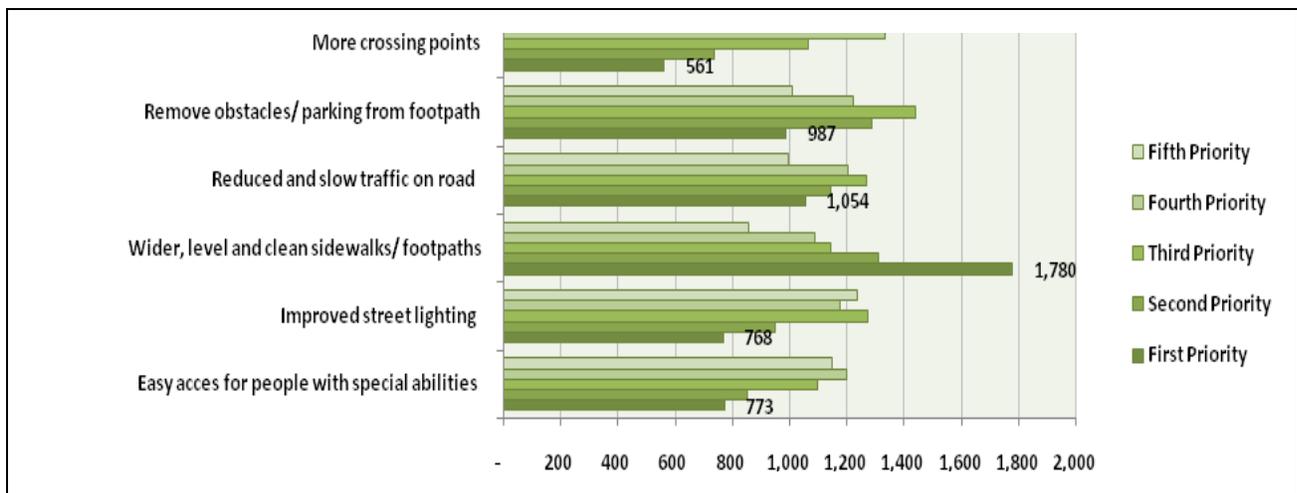


Fig 4: Pedestrian priority of improvements

Another very pertinent point is the accessibility to crossings, with almost 75% of respondents wanting crossing points within 50 to 100 meters.

Preference to at grade crossing was again a majority with 47% wanting it, while 33% wanted skywalks mostly due to perceived threats from high speed motor vehicles. This highlights the requirement of the disabled and the elderly, who find it extremely difficult to negotiate subways and skywalks and also crossing points which are located far away from each other.

Another worrying factor is that a massive 75% of pedestrians wanted to shift to motorized modes if conditions for them did not improve. The 25% who would not shift comprise the low income groups who are trapped as pedestrians and cyclists and will have to live in an unforgiving city.

### **4.3 Review of Policies, Guidelines and Institutions**

The review revealed the lack of relevant policies and political support that looks into the needs of the pedestrians. Considering that most cities have a majority using public transport and who ultimately are pedestrians at some point of their commute, it is essential that pedestrians are included right from the planning stage.

In Malaysia, the Tenth Malaysia Plan (2011–2015) focuses on a new approach toward building vibrant and livable cities <sup>[5]</sup>. The historic approach for transport networks is to design them to move vehicles via roads and highways. The new approach focuses on “public transport as the primary spine, supported by a pedestrian-friendly street network.” It also states that city planning shall promote a human-scale development approach—“designing cities to reduce the need to travel and to encourage the presence of people-centric activities within the urban landscape by concentrating a wide range of activities and amenities within walking distances.”

The draft strategy for the Philippines (created through Presidential Administrative Order No. 254) states that: “Reserving and reclaiming space for pedestrian traffic is as important as providing lanes for cars.” <sup>[6]</sup> It identifies the promotion of effective accessibility and efficient mobility for all as a strategy toward achieving environment and people-friendly infrastructure development. Also, it identifies the provision of pedestrian lanes and bike lanes as a strategy for social equity and gender perspective. It also promotes walking as a utilitarian mode.

In Indonesia, as per the Traffic and Road Transport Act of Indonesia (Act 22/2009),

- i) Motorists must give priority to the safety of pedestrians and bicyclists (Article 106 [2]);
- ii) If a pedestrian crossing does not exist, pedestrians must take responsibility for their own safety when crossing the road; and
- iii) People with disabilities must wear special signs that are visible to motorists (Article 132 [3]).

Budgetary allocation to improve pedestrian facilities also remain poor which is evident from the following examples,

- i) Dhaka, Bangladesh. The Strategic Transport Plan advocates a “pedestrian first” philosophy in its plan for the next 20 years but it only allocates 0.24% of the budget to pedestrian facilities. <sup>[7]</sup>
- ii) Bangalore India: The Comprehensive Traffic and Transportation Study <sup>[8]</sup> envisage an investment of about \$12 billion over the 15-year time frame. The study emphasizes

increasing the share of mass transport to over 70%. On the other hand, the share allocated to pedestrian projects is only 0.6% of the total.

## **DISCUSSION** <sup>[9]</sup>

Pedestrian accessibility plays a fundamental role in sustainable urban transport policies, along with quality public transport, rational pricing of motor vehicle use, and land use–transport integration. These policies can minimize and curb the inefficient use of motor vehicles, which in turn reduces emissions of air pollutants and greenhouse gases from the transport sector. Greater pedestrian access and mobility would also enhance the effectiveness of mass transit, reduce fossil fuel consumption, and promote social justice on the roads (Badami 2009) <sup>[10]</sup>

Many developing cities across Asia are planning to invest heavily in skywalks and subways. However it has been shown that most of them record poor usage, largely due to poor design, wrong location.

With cities recording high pedestrian fatalities of the magnitude of 40% to 50% of road fatalities, it is critical that cities plan for the safety of pedestrians and also allocate equal space to them.

## **CONCLUSION** <sup>[11]</sup>

The study has pointed to the need to focus on the pedestrian facilities in Asian cities to make them sustainable and livable. Stakeholders must now focus on developing NMT facilities and intermodal transition as safe and convenient as possible.

The study recommends specific actions that can be undertaken by different stakeholders in improving the walkability in Asian cities in the following categories:

- i) pedestrian-focused policies and guidelines,
- ii) Institutions and resources clearly allocated for walking and pedestrian facilities, and
- iii) Urban and transport plans and projects that integrate and link the needs of pedestrians and the quality of facilities with pedestrian levels of service analysis.

The National, City governments, civil society, development agencies and the private sector were identified as the key stakeholders needed to support the development and

implementation of these actions. Overall, the city governments were identified as the key stakeholders that should support the development and implementation of these actions. The next stakeholder group that should play a substantial role is the national government, especially in relation to development of national standards for pedestrian facilities and in supporting local governments in developing local action plans for improving walking environments. The governments, whether national or local, must ensure that pedestrian plans are integrated with other transport development plans. It is also important for civil society to be involved in developing and monitoring the implementation of these policies and activities.

Development agencies should play active roles in establishing and supporting initiatives for improving walking environments such as supporting the development of pedestrian-related policies, reviewing design guidelines for urban transport and pedestrian facilities, and pushing for the integration of walkability assessment as an integral part of the planning of transport projects.

## REFERENCES

- [10] Badami, M. 2009. Restoring Pedestrian Accessibility in Indian Cities. ADB Knowledge Showcase. [www.adb.org/Documents/Information/Knowledge-Showcase/Restoring-Pedestrian-Accessibility-in-India.asp?p=kmlshow](http://www.adb.org/Documents/Information/Knowledge-Showcase/Restoring-Pedestrian-Accessibility-in-India.asp?p=kmlshow)
- [8] Bangalore Metropolitan and Land Transport Authority, Transport Planning Unit. 2007, Comprehensive Traffic and Transportation Plan for Bangalore.
- [5] Government of Malaysia, Economic Planning Unit of the Prime Minister's Department 2010, Tenth Malaysia Plan 2011–2015. [www.epu.gov.my/html/themes/epu/html/.../rmke10\\_english.html](http://www.epu.gov.my/html/themes/epu/html/.../rmke10_english.html)
- [6] Government of the Philippines, Department of Transportation and Communication. 2009. Formulation of a National Environmentally Sustainable Transport Strategy for the Philippines.
- [3] Krambeck. H. 2006. Global Walkability Index. <http://dspace.mit.edu/handle/1721.1/34409>
- [1] [2] [4] [9] [11] Leather J, Fabian H, Gota S, Meija A, 2011, Walkability and Pedestrian Facilities in Asian Cities state and issues
- [7] Rahman, Ziaur. 2008. A pro-people transport plan for Dhaka. 5 June 2008. *The New Nation* online edition. <http://nation.ittefaq.com/issues/2008/06/05/news0514.htm>