MESSAGE FROM THE CHAIRMAN

Prof. K.M. Li

The design and installation of roadside noise barriers has become a very hot topic in recent days following the controversial arrangement adopted by the Government in the installation and subsequent demolition of the barriers along the Tolo Highway. Questions on installation and maintenance costs, safety, insulation effectiveness and appearance are being raised and environmental and acoustical engineers together with Government officers are now under pressure to carry out review on the issue.

I was invited by Cable TV, as Chairman of the Institute, to appear on his programme on 11 February 2003 to express opinion on issues related to roadside noise barriers. The intention was to bring professional advice to the general public so that people could have more relevant information to carry out sensible discussion.

Shortly following the interview on TV, a consolidated article with views from various committee members was prepared and released to the press so as to elaborate on the technical aspects and to clarify misunderstandings that appeared from the prevailing discussions.

To arouse members' interest and to stimulate further discussion and cross fertilisation, the press release has been included in the Elite Club for information. It is hoped that as professionals, members can actively participate and express their expert knowledge for the well being of the profession and society.

DESIGN OF ROADSIDE BARRIERS


Prof. K.M. Li, Chairman

In the past months, the issue of barriers along Tolo Highway has been the focus of discussions among the Legislators, the members of public and the media. However, there appears to be some misunderstandings on the technical aspect involved. For the benefit of the public, the Hong Kong Institute of Acoustics would like to elaborate the following technical aspects.

1. The traffic noise problem in Hong Kong is very serious. According to EPD, some 1 million people in HK are exposed to high traffic noise level [i.e. higher than 70 dB(A) L10(1h)]. It should be noted that this traffic noise standard is very lax as compared with other countries like Japan, Australia, Germany and the Netherlands (see chart 1 which is extracted from the website of Advisory Council on the Environment, The Hong Kong SAR Government).

2. Erecting noise barriers to reduce traffic noise is a common practice adopted worldwide. This is not a new technology. The basic principle is to prevent traffic noise from reaching the neighbourhood communities by providing a shielding screen between highways and residential apartments. Because of typical features in Hong Kong (high-rise residential buildings at short distances from highways), relative high barriers are needed for a meaningful noise reduction.

3. Some members of the community comment that barriers in Hong Kong are very massive. We share the same concern. However, we believe that our noise barrier systems need to be rigid, durable and able to withstand typhoon conditions. It is worthy to compare practices in other Asian cities such as Korea, Taiwan and Japan where they

The articles include the opinions of the authors and they do not represent the views of the Institute.

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第九屆全國噪聲與振動控制工程學術會議報告（二零零二年十月）

十月十七日，我們一行三人（Maurice，Westwood和我）帶著又興奮又緊張的心情飛到了南京。
興奮的是有機會見識一下南京這個神祕的古都，而緊張的卻是要演講的內容還沒有準備好。

抵達南京華東飯店後，我們決定充分利用時間，由Westwood帶路，先暢遊了中山陵，欣
賞南京的風土人情，再試出名的大閘蟹，最後疲倦令我們不得不回飯店休息，準備迎接明天的會
議。

本屆會議共分三天進行（十月二十八至十月三十日），超過一百七十位代表，三十五個國家
國、德國、澳洲、荷蘭、新加坡及台灣等國家及地區的廠家參與了本屆會議。其中二十五個國家展
示了他們的產品，出席了這次會議，來自南京大學的劉教授，來自中國科學院的程明昆教授，來自
上海的章奎生教授及呂工等七位代表主持了開幕儀式，而香港聲學學會代表則包括Westwood、KK、
Maurice和我，香港聲學學會會員提交了五篇論文。另外，還有二篇論文由香港和上海代表合作提交。

會議開幕儀式結束後，程明昆教授、章奎生教授、顧超圖教授及王季卿教授發表了大會的四個
核心議題。議題包括‘二十一世紀的聲環境’，‘可持續的人居聲環境及相關的保障技術’等。

第二天的論文發表部份分三組進行，分別為：噪聲控制，噪聲量度及建築聲學。而每組論文發
表後，大會都預留了足夠的時間與各代表提出問題及辯論。各代表對此環節的態度都很熱烈。
Westwood、KK和我在這天上午分別發表了我們的論文，而Maurice則被大會邀請在閉幕禮上代表
香港聲學學會致詞。

通過參與這次會議，不但加深了香港聲學學會與國內業界的相互了解及友誼，還增加了我們與
國內噪聲控制技術及環保政策的認識，我們希望大家能更踊躍地參與下一屆（第十屆）全國噪聲與
振動控制工程學術會議（暫定於重慶舉行）。

以下事項有待大家留意：

1. 國內將於2003年修改現有的環境噪聲標準及條例。屆時香港聲學學會亦可就草擬版本提出專業
意見。
2. 環境噪聲部及建築聲學部將於明年三月在昆明舉行會議，而香港聲學學會屆時亦可派代表參
加，Maurice將會與程教授聯繫。
3. 上海聲學學會將於今年十二月或明年一月初到香港考察及探訪。

上海王季卿教授、
康冠偉及楊國良在會議中

中科院程明昆教授、
姚景光及楊國良在會議中

上海呂玉恒教授高工與
香港聲學學會代表及內地朋友

MESSAGE FROM THE EDITOR

Y.N. Au Yeung

Members probably realised that a change has been introduced in the Elite Club of this issue. The press release by
the Institute was included partly because of the recent concern on roadside noise barriers and partly because of our
wish to make use of it as a lure of introducing new elements such as “technical note” type of materials. It aims at
widening the dimension of the newsletter, making it more interesting and informative. Members are encouraged to
send in their articles and share their experience and technical know-how with others.
would also experience comparable typhoon conditions and have similar residential buildings - roads configurations as in Hong Kong. Figures 1 - 4 show typical high vertical barriers in Korea, Hong Kong, Taiwan and Japan, respectively. Some of the barrier structures used in these Asian countries are less massive compared with that used in Hong Kong.

We can borrow these examples to come up with attractive and integrated noise barrier designs using different forms of mixed materials and shape to give better aesthetic effects.

5. Some members of public prefer using trees instead of roadside barriers. However, for trees to be effective in noise reduction, it should be very thick and dense. Overseas studies indicate that a dense tree belt of about 10 m thick could only give 1 dB(A) reduction.

**TECHNICAL VISIT TO NOISE MITIGATION MEASURES AT MEI FOO FOR FOUR TRACKING SYSTEM**

Martin Chan

On 28th September 2002, the Institute organized a half-day technical visit for our members to inspect a section of the recently erected noise enclosure along the existing Lantau Airport Express Line near the Olympic Station. The enclosure is a noise mitigation measure for combating the operational railway noise from the Mass Transit Railway Corporation (MTRC) Four Tracking System.

Participants included consultants, contractors, acoustic product suppliers and government officers. Prior to the visit, a seminar, chaired by Mr. Martin Chan, was held at Leighton’s site office to give a brief introduction about the Four Tracking System project.

Various topics were covered by those major parties involved in the project: Mr. James Wong (AEC) on the background and acoustic design considerations, Mr. Thomas Yan (MTRC) on the planning and construction aspects, Mr. Alvin Leung (IAC) on the acoustic material selections and Mr. Wilson Ho (Arup Acoustics) on the acoustic testing and commissioning.

The Q&A session received unexpectedly overwhelming responses from the audience resulting in an over-run of about 20 minutes. The actual site visit also attracted much interest from participants with lots of photo shootings. The tour finished at around noon.

The Institute would like to give special thanks to MTRC, Leighton Contractors (Asia) Ltd. and Grace Kwok of AEC to make this event possible.
TACKLING TRAFFIC NOISE IN HONG KONG AND OTHER ASIAN CITIES

The seminar was co-organized by HKIOA and Hong Kong Institution of Engineers (HKIE). The seminar was conducted at the HKIE Headquarters during the Saturday morning of 2nd November 2002. The seminar was split into two separate sessions delivered respectively by Mr. Martin Chan from Hyder Consulting Limited (now with Anvisan Technologies) and Mr Lok Yan from Black & Veatch HK Limited. Mr. Vincent Wong, representative of HKIE, was the MC of the seminar. The seminar was well attended by young and mature members of both Institutes.

A brief review of the approach of legislative control, practice and policies in tackling traffic noise problems in Hong Kong, Japan, Taiwan and Singapore was given in the first session. "Mainland China is omitted because China’s current environmental law and regulations are undergoing some major changes but the exact details are unknown.", a remark made by Mr. Chan. In order to help the audience understand the technical aspects of the talk, some basic concepts in the generation, propagation and control of road traffic noise were covered. An ad-hoc comparison between Hong Kong’s criteria and those in the other three Asian countries was made. A dozen of slides showing examples of barriers and enclosures constructed in Japan, Taiwan and Mainland China were presented as well.

A local case study was presented in the second session. Ways of proactively tackling road noise problems arising from heavy good vehicles in the course of a new town planning were demonstrated. Mr. Yan pointed out that "Based on the findings of the CTS-3 Report, rationalization of the road networks associated with heavy goods vehicles is one of the key solutions to the problems." The ‘Truck Route’ concept as a traffic management measure was presented and its effectiveness was briefly discussed together with environmentally friendly design such as rail-based development, extensive grade-separated pedestrianisation and an extensive network of footpaths and cycle tracks. Given the fact that the public is becoming less favourable with the roadside noise barriers because of their potential visual impacts, the Truck Route concept is far better than barriers.

REPORT ON "CALIBRATION AND ACOUSTICAL STANDARDS" SEMINAR

On 14 November 2002, the HKIOA hosted a special evening gathering focusing on sound level meter, its calibration and acoustical standards in the Hong Kong Polytechnic University.

A total of three presentations were conducted. The first presentation was by Mr Jonathan KWAN of Spectris Hong Kong who gave us a brief recap of the circuitry of sound level meters. At the end of his 10-minute presentation, Jonathan asked members to take note if the calibration takes into account of the disturbance due to the body of sound level meter. The second 10-minute presentation was by Mr Tom HO of S&V Samford. Tom talked about why we need calibration. At his concluding remarks, Tom pointed out that in future the fully digitized sound level meter may not need exhaustive and rigorous calibration as the analogue type needs.

For the third presentation (which was the main theme of the evening), we had great pleasure to invite Dr George WONG from the Institute for National Measurement Standards, National Research Council, Canada to talk to us on “Calibration and Acoustical Standards”. Dr WONG started with the theory, practice and stability of primary reciprocity calibration system. Then, he discussed about the effects and concern of barometric pressure on microphone sensitivity. After that, Dr WONG briefed us about the upcoming new IEC standard IEC61672-1 for Sound level meters (which would replace IEC 60651:1979 and IEC 60804:1985). We were given to understand that Part 1 had already been published in May this year but would not be effect until Part 2 (type test pattern) and Part 3 (calibration) publish. The new IEC standard is applicable to both sound level meters with extensive analogue or digital signal processing and multiple analogue and digital outputs. This new standard would also include specification for Electromagnetic compatibility. Dr WONG said that it is likely that Part 2 would be published in mid next year. Dr WONG also told us something about the high power ultrasound measurement and the recent findings by Swedish scientists. Before the seminar ended, Dr WONG highlighted to us the usefulness of comparison microphone calibration.

Some 30 members attended the seminar and they all found the evening very interesting, insightful and informative. Many questions were raised with regard to new IEC standards for Sound Level Meters.