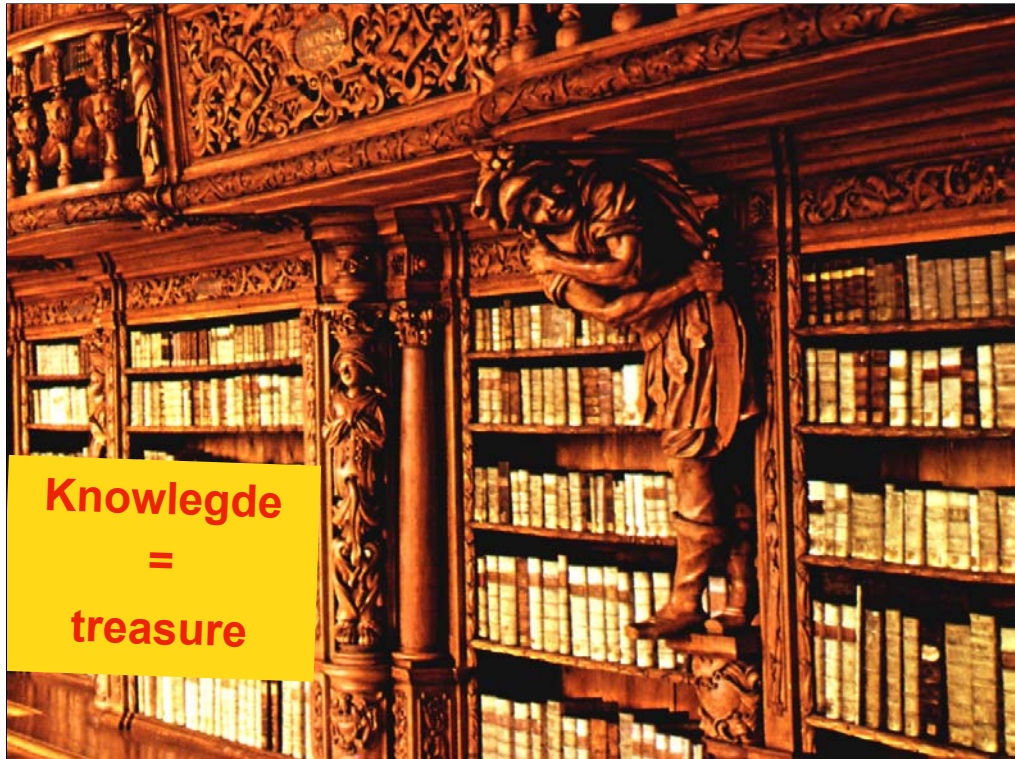




When the Intl. List of References on Micropiles was presented in Tokyo in 2004 emphasis was directed to the entries and their authors showing the centres of activity in the different countries. This time it is the purpose to draw attention to the practical aspects of knowledge dissemination by the newly created International Society of Micropiles (ISM).

Medieval libraries were centres of science for centuries. By the elaborated interior of the library halls with wood carved shelves, ceiling frescos and beautifully shaped book covers the knowledge was visualized and its value emphasized. The knowledge collected in these libraries was far reaching as the scientific language was Latin which has spread over entire old Europe. The challenge for us is how can we access such a library for micropiles globally and in an easy way.



We learn from the monasteries that knowledge is a high value and we have to speak or at least understand a common language in our effort to collect and disseminate knowledge and experiences globally. While working on the Intl. List of References for Micropiles we faced the same problems. We have to accept English as the common vehicle of understanding due to its wide spreading. Historically seen the confinement to national schools is a problem of the language. The English speaking engineering community frequently knows little what has been published in other language regions in the past. French, German, Italian and Japanese publications are rarely accessible to English speaking engineers, if there are no similar contributions in English or translations. If Lizzi had not travelled around the world reporting on his ideas in English the technology may still remain an Old Europe domain.

ISM and the Data Base

Some of the ambitious goals of ISM are:

- Bring together experts from around the world for exchange of knowledge and experiences.
- Communication on an international level by knowing each other
- Knowledge dissemination in the field of micropile technology world wide
- Advance of the technology
- Concentration on open issues: Prevent reinventing the wheel by lack of communication

Communication and knowledge transfer on an international level is one of the main goals of the newly formed ISM: We want to know what has been done in our special field of micropiles in the different parts of the world. We want to know where experiences exist and where the technology is still unknown. We want to be able to contact the national centres of knowledge and we want to communicate with their experts.

So an essential task of IWM and now ISM is to overcome the language barrier and bring together experts from around the world for exchange of knowledge and experiences. One leg of these activities is to establish, maintain and continuously update a data base which is accessible to all experts.

The data base – a concept still in evolution

- **Literature data base:** The Intl. List of References for Micropiles (**ILRM**) is a first step in fulfilling this goal. It serves as an overview what has been done so far since 1952, in which country, when and by which authors, companies, laboratories, researchers
- **Case histories:** They are excerpts from the ILRM. If each entry has been classified with 2-letter keys, case histories figure with AA, AR, AS the first A indicates “Application”
- **Testing data:** They are excerpts from the ILRM as well. The 2-letter keys for testing data is TS for Testing on Site and RR for Research and Results

Whenever one starts a work a goal should be defined and a certain direction how to proceed has to be considered. However, on the way many new aspects may change the original purpose or even widen it. The International List of References for Micropiles may be considered as the basic data treasure which may be can be used for different purposes. The quantity of papers related to a certain topic may provide a guideline for the need of special evaluations. So case histories and testing data may be worthwhile to concentrate on.

The International List of References for Micropiles (ILRM)

Author/s	Title	Published in	2-Letter Keys, Key Words	Country of author/s	Year
Fross M.	Underpinning with Micropiles – Experiences from 1971 to 1981 - Unterfangungen mit Kleinbohrpfählen – Erfahrungen von 1971 bis 1981	Proc. 10 th Conf. on Foundation, Brno, CSSR (now CSR)		Austria	1982
Aschenbroich H.	Injection Boring Titan Micropiles for Structural Support and Seismic Applications in North America	Proc. 4 th IWM 2002, Venice, on CD, ADSC Tech.Library, Dallas TX, USA, 45pp-f		Canada	2002
Lethonen J.	Steel Properties for Micropile Design	Proc. 1 st IWM 1997, Seattle, DFI, N.J., USA, 6p.		Finland	1997
Frank R.	Axial resistance of micropiles: from French to Eurocode design	Proc. 5 th IWM 2003, Seattle, on CD, ADSC Tech.Library, Dallas TX, USA, 11 pp-f		France	2003
Gruber N., Koreck H.W., Schwarz P.	Bearing Behaviour of Micropiles at Cyclic Axial Loading (2 investigations) - Beiträge zum Tragverhalten axial zyklisch belasteter Pfähle	Lehrstuhl und Prüfarmt für Grundbau, Bodenmechanik und Felsmechanik, Techn. Univ. München, Heft(Publ.) 5		Germany	1985
Lizzi F.	The "Reticolo di Pali Radici" (Reticulated root piles) for the improvement of soil resistance	Proc. 7. Europ.Conf. on Improvements of soils, Helsinki, Finland		Italy	1983
Nishitani M.; Fukui J.; Umebara T.	Horizontal Loading Tests on Model Foundations Retrofitted by Micropiles	Proc. 4 th IWM 2002, Venice, on CD, ADSC Tech.Library, Dallas TX, USA, 38pp-f		Japan	2002
Turner M.J.; Wilson D.J.	Micropiles at Albert Docks, Liverpool	Journal "Ground Engineering", Vol. 23, No.5, Sept, 5 p		U.K.	1990
Bruce D.A.; Dimillio A.F.; Juran I.	Horizontal Loading Tests on Model Foundations Retrofitted by Micropiles	ASCE, GPS 50, pp.1-26		USA	1995

Here a few entries in the ILRM are shown as an example for the existing more than 450. By arranging the columns with a sorting routine of the computer program all entries of the same first line author, country of author or year of publication may be searched for with a mouse click. The 2-letter keys support an easy search of the topics of the papers. Key words may provide a more detailed detection of content of papers.

Proposed 2-letter keys for grouped themes related to micropile technology

2-letter key	Group theme
AA	Application, axial, case I, single + group
AR	Application, axial + lateral, case II, reticulated,
AS	Application, seismic securing + retrofitting
DP	Description of products
DT	Description of technology
ES	Execution on site
GO	General, other topics
GT	General, technology
PD	Procedures + design
QC	Quality control
RR	Research and results
SR	Standards, rules, guidelines
TS	Testing on site

The list of the 2-letter keys is extended as compared to the presentation for IWM2004 in Tokyo by „QC“ for quality control. It gains increasing importance so that it should be mentioned separately. Presently 13 nos. 2-letter keys are proposed. All papers need to be classified for the purpose of the Int. List of Ref. for Micropiles there. For best the author/s, if still available, should do it by themselves or in writing a new paper it should be done right away. If the language of the paper is not English, head lines, some key words, even results should be translated into English. If the same content appeared in another publication in English language it should only be referenced or not listed at all in order to avoid repetition.

Setting up a data base requires quite distinct activities which need the cooperation of the national experts, authors and researchers:

- Collecting of papers and presentations on national level where access to publications and libraries is given and the language is understood. Reviews, proceedings of meetings and university publications are known best locally
- Classification with 2-letter keys and key words for Intl. List of References for Micropiles
- Translation of headlines and some results into English, in future by the authors themselves

The management of activities for setting up a data base has to be defined and the individual steps have to be allocated to person.

Central administration and local language centers

- International Center: at ISM, ADSC, University?
- Local Language Centers:

Language	Countries	Who / where
English	Canada, UK, USA	G. Weinstein, Brooklyn Polytec
French	France, Belgium	
German	Germany, Austria, Switzerland	N. Vogt, TU Munich
Italian	Italy	R. Fiorotto, Bauer
Japanese	Japan	M. Sagara, Fujita, Tokyo
Scandinavian	Finland, Sweden	J. Lethonen, Turku Polytechnic
Spanish	Spain, South America	J.M. Fernandez, Kellerterra, Madrid
Portuguese	Portugal, Brazil	J. Veluda, IPL Leiria

It has to be decided where best all publications are collected and are permanently accessible. Library of ISM, ADSC, Universities.

In addition local language centers for literature collection should always be maintained for the different language regions

Maintenance of the Intl. List of References for Micropiles

Required activities:

- ❖ Annual updating of the ILRM and amending the home page is considered to be small work
- ❖ Main task is continuity: Maintain close contacts to persons of the local language centers over the years in order to receive the annual updates reliably

•It has to be decided and organized how often and when the data base shall be updated. Here ISM depends entirely on the different local language centres. This requires a reliable contact person who is engaged to provide headlines, names of authors and copies of the publications e.g. annually. Considering the fluctuation of researchers such activities need the personal engagement even of the head of a department and of long term employees.

•Once the literature data base has covered all former publications annual updating is no time consuming task for the language centres if the proceedings of the IWMs are entered by ISM itself. Main attention has to be directed to the continuity over the years to maintain the system operational. The chosen centres should not change too frequently their activities and then neglect or even abandon this task. We have to remind that so far all activities are based on the personal interests of a group of experts to spread this technology.

The commitment to library activities

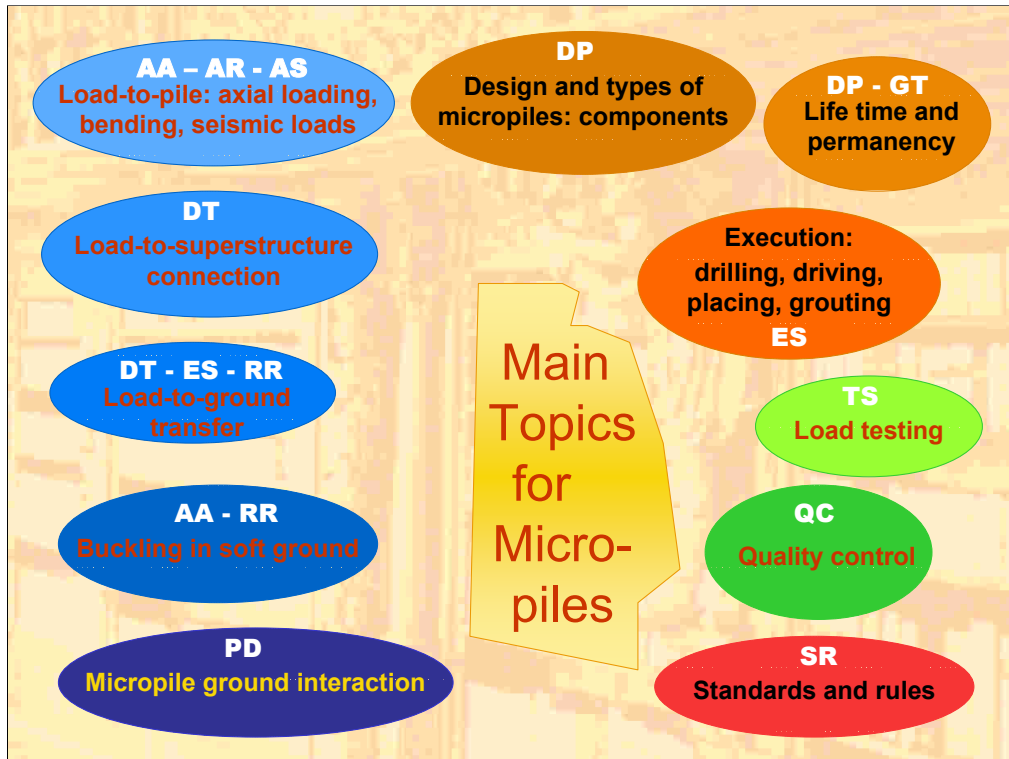
Handling of different types of hardware:

- ❖ Printed matter: Books, reviews, reports
- ❖ Copies
- ❖ CDs, DVDs

Dispatchment of literature requests:

- ❖ Availability of the referenced literature at ISM
- ❖ Time of response to literature requests
- ❖ Transmission: mail, e-mail
- ❖ Frequency
- ❖ Costs

A big portion of the available literature is still paper printed. They may be copies or original prints as for books or big reports and publication series. It is a major undertaking to copy them all on electronic media. Afterwards, however, their handling is eased. Since the 4th IWM 2002 all the IWM proceedings are on CD. A decision has to be made as special funding is required.

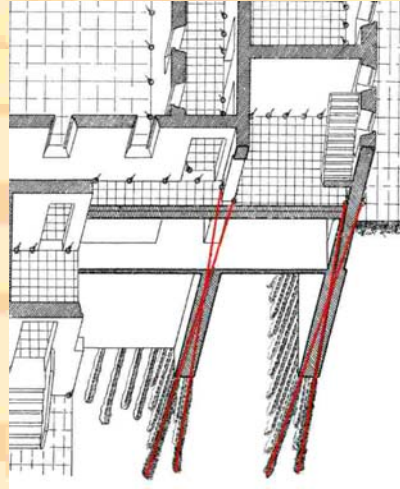


The main topics for micropile technology are indicated in the circled fields. The 2-key letters follow quite well the scheme for the main topics. A balance has to be maintained between a too detailed differentiation of topics and an their acceptable and manageable number. Working with the 2-letter-key identification in future will show if sufficient and correct groups were chosen.

Example for a search result from the ILRM

Which was the first application of Micropiles?

- Sort the ILRM by the year:
1958, Fondedile brochure.
Retrieve document through
ISM.
- Check table of references:
A. Angiulli School in
Naples (Italy),
800 root piles, totalling
10000 m piles.
- From Lizzi's book you find:
year of execution: 1952,
pile dia. 10 cm.



An example shall demonstrate that results can quickly be retrieved if the ILRM is used and a quick access to the literature is available.



The end!