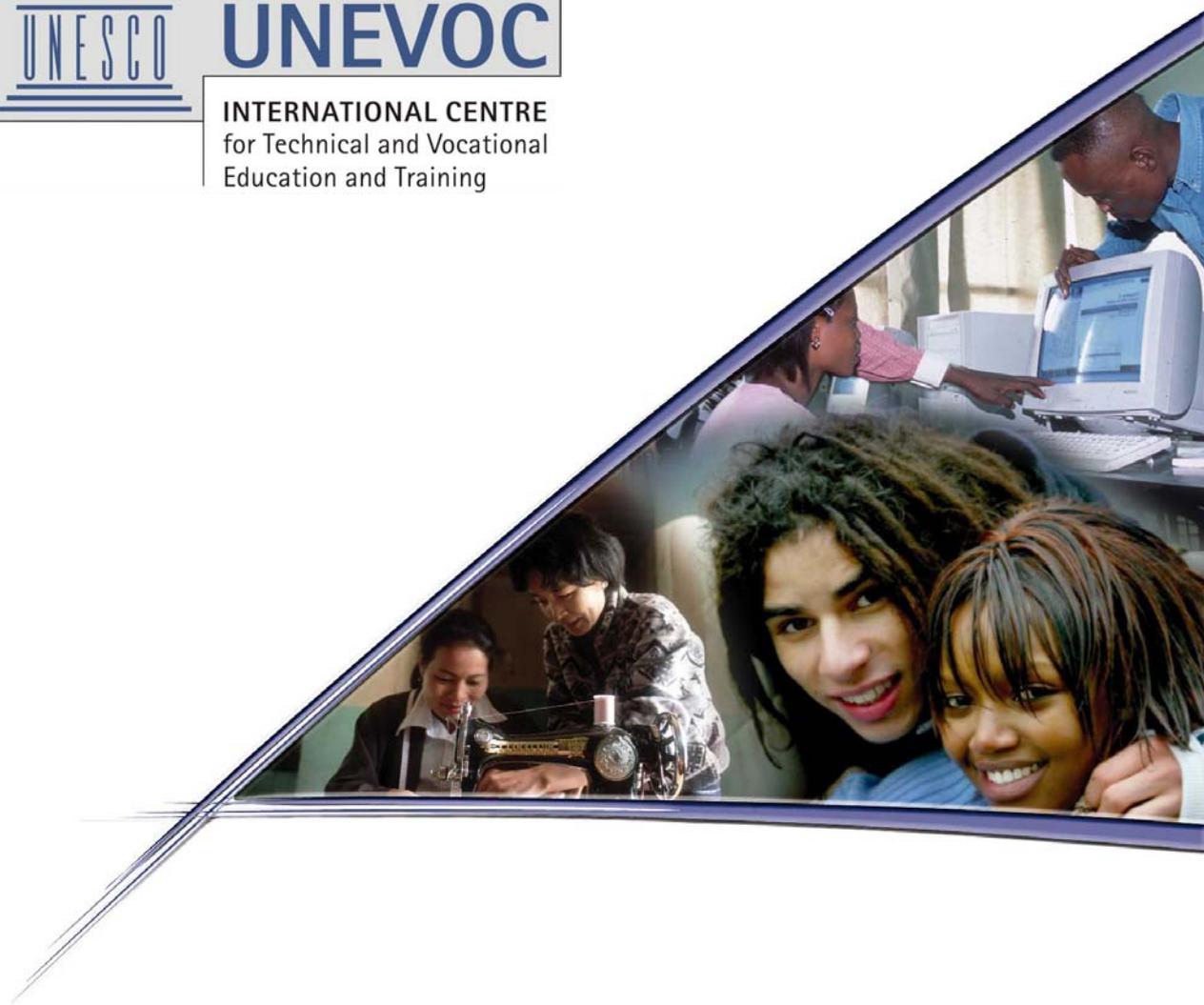




INTERNATIONAL CENTRE
for Technical and Vocational
Education and Training



UNESCO International Meeting on Innovation and Excellence in TVET Teacher/Trainer Education

Jointly organised by UNESCO-UNEVOC and UNESCO Office Beijing in partnership with the Chinese National Commission for UNESCO and the Chinese Ministry of Education.

Hangzhou, China
8 – 10 November 2004
Documentation from the meeting.

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Final report of the meeting.

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Report prepared by Karina Veal, Joachim Dittrich & Pekka Kämäräinen
Further information on TVET Teacher Education available on websites of United TVET network on innovation and professional development www.unip-net.org and UNESCO-UNEVOC www.unevoc.unesco.org
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Hangzhou Declaration

The UNESCO International Meeting on Innovation and Excellence in TVET Teacher/Trainer Education held from 8 – 10 November 2004 in Hangzhou, China, organised by UNESCO-UNEVOC International Centre for TVET and UNESCO Office Beijing in partnership the Chinese National Commission for UNESCO discussed, *inter alia*, the following:

- The current marginalisation of TVET *vis a vis* general and academic education;
- The current fragmentation in the fields of teacher education/training of trainers for TVET;
- The need for developing higher degree structures in TVET education;
- The lack of an established research culture that should focus on the development of TVET; and
- The challenges in promoting intercultural understanding and knowledge sharing between and among developed and developing countries.

Based on discussions of the above, the 68 participants from 25 countries who met for the first time as a collective agreed that:

- TVET should be developed into an internationally acknowledged scientific community;
- Sustainable, reproductive and innovative national scientific systems be developed and integrated into national systems of innovation;
- International exchange of learners and educators be accelerated;
- The expertise in pedagogy of TVET should be linked to the vocational disciplines and to integrative perspectives on school-based and work-based learning;
- An improvement in vocational skills for employability and citizenship can only be realized if there is an improvement in the quality, effectiveness and relevance of teaching, and that
- An effective interaction between teacher/trainers and learners lies at the centre of quality TVET.

We recognise that achieving these goals requires innovation and excellence in TVET. Innovation, scholarship and research in all aspects of TVET must be accelerated if solutions to the challenges identified at this meeting, are to be found.

We therefore commit ourselves, in each of our own countries and organisations, to working collaboratively to improving TVET teacher/trainer education so that we may hasten the achievement of quality skills development that may contribute positively to economically vital and sustainable communities.

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Introduction

At the very centre of quality technical and vocational education and training lies an effective interaction between teacher/trainer and learners. Indeed, an overall improvement in vocational skills for employability and citizenship can only be realised if there is an improvement in the quality, effectiveness and relevance of teaching. Many, both in the developed and developing worlds, are increasing the emphasis they place on improving the capacity of technical and vocational education and training (TVET) systems, in recognition of the important role TVET plays in equipping individuals with relevant skills and knowledge. TVET can also better enable individuals to participate in social, economic and technological innovation processes. Therefore, embedding TVET into regional and national innovation structures is of crucial importance to the economic performance and social development of countries. Having a pool of skilled and knowledgeable people within the TVET industry is as important to the TVET industry as it is to the industries TVET serves.

The UNESCO Office Beijing and the UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training in Bonn (Germany), in partnership with the Chinese National Commission for UNESCO and the Chinese Ministry of Education organised the international meeting to develop strategies to increase innovation and excellence in TVET teacher education. The meeting was held in the Radisson Plaza Hotel, Hangzhou, capital of Zhejiang Province, Peoples Republic of China, from 8 - 10 November 2004. Sixty-eight experts participated, from twenty-five countries, with a broad based representation from developing countries within the Asian region.

Whilst there have been many international meetings of TVET experts, and many international meetings of teacher training experts, the meeting in Hangzhou was the very first time that an international group of colleagues have come together specifically to address a range of issues pertaining to TVET teacher/trainer education. The meeting gave considerable time to discussing ways of improving the quality of TVET professionals through advanced study. Specifically, the meeting considered the idea of a masters-level programme in TVET. The meeting agreed with the value of the framework developed by a consortium of European academics as the basis for further investigation as an international curriculum framework for a masters degree in TVET teacher education and research. The meeting also agreed on the value of, and the formation of, a new international association in TVET able to progress the masters programme and other ideas. Proposals for both initiatives are included towards the end of this report. Finally, participants endorsed their Hangzhou Declaration, the text of which can be found as a foreword to this report.

Opening session

Mr Zhou Peizhi, Deputy Director of Xiacheng Education Bureau, Hangzhou took the podium to chair the Opening Session. Mr Zhou introduced the official guests at the Opening and welcomed all guests and participants to the *UNESCO International Meeting on Innovation and Excellence in TVET Teacher/Trainer Education*. Mr Zhou emphasised the importance of improving TVET teacher/trainer education in China as one part of improving skills development for the continued growth in China, and for these reasons, he said, it is very pleasing that such an important meeting be held in China. Mr Zhou invited five dignitaries to give some short welcoming comments on behalf of their organisations:

- **Mr Du Yue**, Deputy Secretary-General, Chinese National Commission for UNESCO
- **Ms Liu Yufeng**, Deputy Director, International Cooperation and Comparative Education Research Division of Central Institute of Vocational and Technical Education, Ministry of Education, China, on behalf of Mr Yu Zuguang, Director
- **Mr Rupert Maclean**, Director of UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training
- **Mr Sun Jianyong**, Deputy Director of Hangzhou Xiacheng Government
- **Ms Lu Ruifeng**, Vice Mayor of Hangzhou Municipal People's Government.

During the Opening Ceremony students from three local schools provided short musical and opera performances.

Mr Rupert Maclean, Director of UNESCO-UNEVOC International Centre for TVET, presented, immediately after the official opening, the objectives and programme for the meeting. He outlined the structure of the meeting around detailed working sessions to allow maximum involvement of participants and the anticipation of specific outcomes from the meeting, for example: parameters to guide development and accreditation of a masters-level university degree in TVET in countries /institutions interested in establishing such a programme; strategies for teacher training measures that could be implemented to increase the professionalisation of TVET in countries/institutions in need of lower level programmes; parameters for considering competency-based standards for TVET teachers/trainers; a framework for, and possible formation of, an international association of TVET professionals; and strategies for increased international and regional cooperation for the professionalisation of TVET.

TVET teacher/trainer education: issues and concerns

Chaired by Dr Siripan Choonmoom, Vocational Education Commission, Thailand, this plenary session allowed for two important presentations:

- *Academic education of technical and vocational teachers in Peoples Republic of China*: Professor Shi Weiping, East China Normal University, Shanghai, China
- *The international context for TVET teacher/trainer education and the changing requirements for teachers/trainers*: Professor Felix Rauner, Bremen University, Germany

Professor Shi Weiping gave the first keynote speech of the plenary session. He gave an open and critical reflection on the current development of master-level programmes in TVET at the East China Normal University, Shanghai. He started by presenting background information on the needs for VET-related professional specialists, on related training models and on studies that evaluate the impact of such training models. After this he examined some educational contradictions that have prevented the models from achieving their full educational objectives, such as the difficulty of pursuing innovative goals with pedagogy that has not kept apace. He also analysed some trends that can impact negatively on TVET as a whole, for example the tendency away from VET-related master programmes towards industry and HRD-related professional careers.

Dr Joachim Dittrich replaced the second invited keynote speaker, Professor Felix Rauner, whose plane was delayed. (Dr Dittrich had supported the work of the scientific committee, led by Professor Rauner.) The speech provided an overview of international debates on the educational status and industrial importance of vocational education, training and learning. Dr Dittrich outlined a perspective and approach to promote professionalisation and an independent research culture in the field of VET. The integration of research in addition to policy and practical competencies into TVET development is essential to assure a holistic TVET innovation pattern. Dr Dittrich stressed the importance of masters programmes as a basis for PhD studies and for ongoing university based research and teaching into TVET.

TVET teacher/trainer education: prospects

Dr Masriam Bukit, Technical Education Development Centre, Indonesia, chaired this Plenary session which brought forward some of the emerging issues regarding TVET teacher/trainer education:

- *Common standards for qualifications for TVET teachers: Professor Richard Lynch, University of Georgia, USA*
- *A curriculum framework for a masters study course in TVET: Mr Pekka Kämäräinen, Jyväskylä Polytechnic, Finland*
- *The need for a new international association for TVET? Mr Rupert Maclean, Director UNESCO-UNEVOC Centre, Bonn, Germany*

Professor Richard Lynch had the task to prepare the ground for a debate on the challenges for teachers and teacher competences in TVET. He approached this question by using the national developments in his own country (the United States) as a reference point for international debates. He drew attention to the U.S. federal structure that allowed each state to develop its own policy priorities within a (federal) common macro-framework. He also highlighted an interesting issue regarding competition and stratification of university programmes. On the one hand the social demand for higher education promotes efforts to upgrade diverse programmes into university programmes. On the other hand the status competition between universities and colleges becomes manifest in diverse forms of quality assurance and quality control that are used for ranking and segmenting the higher education establishments and their degrees. He also analysed some cultural tendencies which have led to the change of terminology within the American TVET community that has now largely given up the expression *vocational education and training* and instead started to use the term *career and technical education*.

Mr Pekka Kämäräinen introduced the working document on curricular frameworks for international master-level programmes. He took the audience through the document (prepared previously by a group of European academics) by highlighting the underlying issues and by presenting insights into the related background debates. He traced the specific elements back to certain problem situations in European and national (in particular German) TVET-specific debates yet also emphasised the broader relevance of the key concepts that have been brought to European and international debates. From this perspective he discussed

the relative importance of the European cooperation project Europrof that created a trans-national 'invisible college' to discuss the foundations of education of new TVET professionals. Mr Kämäräinen drew attention to the different strands of the follow-up project Euroframe (the plan for trans-national inter-university network in the field of TVET and the analyses on patterns to promote *continuing professional development* of TVET professionals) as efforts to consolidate and/or articulate the common grounds of the 'invisible college'. Mr Kämäräinen also discussed the impact of attempts to cross the barriers between educational expertise (for vocational teachers) and work-related expertise (for HRD-specialists). He emphasised the importance of connective learning arenas for TVET-related educational innovations and for organisational innovations in working life. Finally he drew attention to the conceptual diversity of views regarding the interpretation of pedagogic and/or professional expertise in TVET. He made a distinction between three basic approaches: pedagogy applied to TVET, vocational pedagogies as subject-didactic annexes to subject-disciplines and pedagogic of TVET, and knowledge development on vocational areas of specialisation and on related pedagogic know-how.

Mr Rupert Maclean was the third speaker of this session. He opened up the debate on a possibility to set up a new professional community to support the follow-up of the conference. Rather than tie this issue very strongly to the specifics of any particular model of organisation he presented a broad range of options how international associations can address issues that are important for educational researchers, practitioners and policy developers. In this context he referred to the possible support that can be provided by UNEVOC centres. After these explorations he left open possible conclusions to be drawn in the debates in the working groups.

Views from the field

Professor Johanna Lasonen, holder of the UNESCO Chair in Intercultural Education at University of Jyväskylä, Finland, chaired *Views from the Field*. Held over two consecutive sessions, the presentations gave participants the opportunity to hear brief presentations from TVET teacher training experts in ten countries, who were each asked to address the following two questions: a) how are TVET teachers currently trained and b) what are the strengths and weaknesses of the current approach?

Malaysia: Professor Jailani Yunos, Kolej Universiti Teknologi Tun Hussein Onn, Johore

Malaysia's vision 2020 aims at a sustainable and high quality economic development that includes prospects for advanced production and building up high potential knowledge at the intermediate level of qualification. Knowledge workers, being highly skilled individuals who also have hands-on experience are expected to play an important role in modernising production and in innovation. In order to educate and train such high potential workers, TVET needs upgrading both at the institutional level and at the TVET teaching level. The country is recognising the need for several thousand new, highly skilled TVET teachers during the next years and is currently focusing on building up capacity for TVET teacher and trainer education.

Chile: Ms Ana María Rosende, Centro de Formación Técnica Duoc UC, Santiago

TVET training in Chile remains insufficient to meet the needs of industry and the needs and aspirations of individuals. There are still many teachers who lack formal training in education or pedagogical aspects and who do not develop sufficient employability competencies in technical areas. The government is aware of the need to increase specialised training for vocational teachers. This is being implemented within two main teacher-training institutions: Chile Califica (Vocational and Continuous Education Programme) and Duoc UC Technical and Professional Institute. Ms Rosende reported that Duoc UC has a strong and innovative approach but needs significant expansion to meet the needs of the country.

Indonesia: Dr Masriam Bukit, Technical Education Development Centre, Bandung

There is strong involvement of the private sector in TVET training in Indonesia. It is estimated that four-fifths of the TVET schools are privately run, with only one-fifth government run. There is a particular problem with unqualified, or low qualified, teachers in the privately run schools. Significant resources are going into in-service training centres for TVET teachers, in regional cities throughout

Indonesia. Dr Bukit reported that these programmes themselves need improvement and expansion, and do not replace the need for significant upgrading and increase in pre-service TVET teacher training.

China: Professor David Lim, Vocational Training Council, Hong Kong

A number of vocational training providers offer programmes in Hong Kong; institutes, training centres and centres for students with special educational needs. In all, there are around 150,000 students (35,000 FTE) and over 2,000 full time teachers. The percentage of teaching staff with formal teaching qualifications, especially in the lower level training centres, does not compare well with that of secondary schools. A number of quality improvement and assurance mechanisms are in place to maintain quality and confidence in the outcomes of vocational training, nonetheless, increasing the percentage of staff with formal teaching qualifications is important. In recent years, considerable attention has been given to reforming a number of aspects of vocational training in Hong Kong. Developing and implementing approaches to improving the teaching force is a priority for the coming years.

Thailand: Dr Siripan Choonmoom, Vocational Education Commission, Bangkok

In Thailand there is also a strong private sector for TVET training and again a much stronger representation of qualified teachers within the public providers. Most people who wish to pursue a career as a TVET teacher undertake a 2-year study programme. There is also a 4-year bachelor degree in TVET education but only 20 per cent choose that option. With both programmes, students are required to complete one semester of teaching practice in addition to their academic studies. Considerable effort is being paced on improving the quality of TVET teachers in Thailand with standards for professional qualifications, experience and ethics, as well as new professional development programmes to maintain relevance for those already qualified.

Bangladesh: Associate Professor Che Kum Clement, Islamic University of Technology, Dhaka

Whilst Bangladesh faces many challenges in educating and training its population (which has widespread poverty and very low adult literacy levels) there are defined pathways for TVET teachers. There are three TVET teacher training institutes in the country: the Technical Teachers Training College, Dhaka, the Vocational Teachers Training Institute, Bogra and the Islamic University of Technology, Dhaka. However, the teachers (and indeed the skills provision programmes) tend to be swayed towards those with science or engineering backgrounds. To meet the skills development needs of the population, greater emphasis needs to be given to TVET teachers with broader backgrounds and experience. Professor Clement also reported interest in offering post-graduate training options in TVET education to raise and maintain standards.

Cambodia: Mr Bun Phearin, National Technical Training Institute, Phnom Penh

TVET teaching and learning needs in Cambodia are shaped by the particular needs of the country which has, for example, 80 per cent of its population in rural areas involved in agriculture. There are too few government run TVET teacher training options, although the shortfall is to some extent made up by donor-subsidised and NGO programmes in available. Historically, many TVET teachers became qualified abroad – maybe in Viet Nam or in the former Soviet Union – but now the focus is on developing suitable options internally.

India: Professor S.Z. Haider, PSS Central Institute for Vocational Education, Bhopal

Responsibility for formal technical and vocational education in India is shared between a wide number of players. There are three different levels of training (technical industrial arts and crafts schools, higher secondary vocational education and also technician education) and overall planning is undertaken not only by various national bodies but also by different ministries and departments with responsibilities for particular industries. Add to this the relative responsibilities for planning and implementation between central and state governments, plus the inevitable challenges arising from the large population and geographical size of India, and it is clear that TVET provision is highly complex. There are likewise a number of options for pre-service and in-service education for TVET teachers, ranging from pre-service regional colleges of education and universities and in-service training of teachers conducted under the guidance of organisations such as NCERT, the National Council of Educational Research and Training. NCERT is placing some priority on increasing TVET teacher quality with a range of competency based short programmes (2-4 weeks) based on job requirement analysis aimed at raising quality and promoting innovation

Lao PDR: Mr Soulikhamkone Sisoulath, Vocational Education Development Centre, Vientiane

Centres such as the VEDC in Vientiane face a massive challenge over the coming years. TVET teacher training is extremely under-developed in Lao PDR. The collapse of the former eastern bloc struck a big blow to higher education, since many people from Lao had gone outside on scholarships to other communist countries. Mr Sisoulath reported that the government is now committed to offering opportunities internally, both with pre-service and in-service programmes, but that the activities are still embryonic. The first year of the new diploma/degree Lao TVET teacher education programmes was in 2003, with intakes so far not quite reaching 100 students per year. The two biggest constraints are budgetary and also insufficient numbers of experienced staff members to teach in the programmes.

DPR Korea: Dr Chae Ryang Il, Ministry of Education, Pyongyang

The government of the DPR Korea has provided a comprehensive system of education, which includes technical and vocational education and training undertaken either in the universities (technical) or in what is called the informal higher education system (study-while-working system). With this system the colleges relate to the major areas of employment, i.e. factory college, farm college, fisherman's college as well as evening and correspondence courses in general subjects. The government is concerned to raise the level of intellectual attainment in the country and is paying attention to life long education. There are plans to open new informal institutions of higher education, including new factory, farm and fishermen's colleges and increase the training index and scope of the existing vocational institution to better meet the requirements of the economic development in the new century. Improving the role and quality of TVET teachers is a part of this, and is a priority for the future.

Outcomes of group sessions

The three-day meeting was structured to allow for detailed working sessions. Two cycles of parallel working groups were organised during which the participants were divided into two thematic groups.

Group A: Identifying ‘good’ TVET teachers and trainers

Working group A discussed a number of issues relating to ‘good practice’ in TVET teaching, whether measured in informal ways or through the establishment of occupational standards. The session was chaired by Dr Veronica Volkoff, and benefited from a previously distributed discussion paper prepared by Professor Peter Gerds, who was also the first speaker. He outlined some of the experiences of countries that have, over recent years, debated the merits of, or commenced a process of developing, occupational standards for teachers. Dr Zhao Zhiqun provided information on a research project undertaken of TVET teachers in China which found, to some extent, a mismatch between the current skills of teachers and the new expectations of community and industry. Dr Norman Lucas followed the issues of vocational standards with direct reference to the situation in the UK.

After these presentations the roundtable discussion of the group focused on the desirability/feasibility of adaptive standards for TVET teachers/trainers. There was no clear consensus on this issue, based on the workshop at this meeting. Some participants thought there was definitely value in commencing a process of defining standards for TVET teachers and trainers; others believed there was value in defining some standards but not attempting any international adoption whilst others believed that only the identification of common core standards would have any utility. All agreed, however, that the use of different tools to improve standards is worthy of national discussion and action.

Group B: Structuring a higher-level degree in TVET

Working group B discussed a proposal for a common curricular framework for Master programmes in VET was chaired by Professor Felix Rauner. The introductory speeches were given by Dr Joachim Dittrich, Professor Zhang Jianrong (Tongji-University, Shanghai) and Mr Pekka Kämäräinen. Firstly, Dr Dittrich gave a brief input of the preparation of the working document and the idea of piloting the approach in preparatory workshop in China in spring 2004. Then Dr Zhang Jianrong presented the master-programme in TVET at his

university as an exemplary case that is based on similar principles as have been outlined in the proposal. The working group did not put the basic approach of the document under question. Instead, the approach that was based on vocational fields of specialisation (vocational disciplines) was taken as the common starting point. During the discussion it was acknowledged that the vocational fields of specialisation do not automatically provide a basis for creating vocational disciplines and related pedagogies. Instead, it was emphasised that the latter concept requires further knowledge development.

Group C: Short courses and other strategies

Working group C, chaired by Professor Johann van der Sanden, drew on the perspectives of participants to address the question: what short courses and other strategies can improve TVET teacher trainer performance? The workshop was targeted in its focus on countries or regions for which higher level university programmes are unlikely to be an appropriate or feasible solution to improving teacher training performance. Mr Efison Munjanganja provided an overview of different approaches to TVET teacher training used throughout Asia as well as examples of successful strategies that can be useful in the absence of formal programmes. Professor Peter Gerds gave examples of useful approaches in Ethiopia and Ms Lui Yufeng and Professor Nick McCaslin also provided starter input to the round table.

Participants in the group identified no fewer than 21 actions that could be implemented within most situations. A number of the suggestions centred on variations of coaching, mentoring, networking and continuous learning. Other suggestions included customised professional development programmes, using standards to assess needs, setting up short courses within teacher-training institutions and establishing quality assurance mechanisms. There was wide agreement on the urgent need to increase innovation and excellence amongst TVET teachers within developing countries, and a shared commitment to the importance of finding fast and effective solutions.

Group D: Accrediting new higher-level programmes

Working group D discussed a set of three linked topics that were discussed consecutively:

- reflection on diverse patterns of quality assurance in higher education,
- the role of the emerging *scientific and professional community* in promoting quality of the Master-programmes (and post-graduate education) and
- preliminary ideas on setting up a new international association or umbrella network.

The working group was chaired by Professor Richard Lynch and introductory inputs were given by Professor Johanna Lasonen, Dr Joachim Dittrich and Professor Che Kum Clement. Professor Lasonen analysed different basic views on promoting quality in higher education and related working concepts for quality assurance. On the one hand she discussed the approaches that focused on general pre-given standards and related methodologies (i.e. accreditation, auditing). On the other hand she discussed developmental approaches that

support the creation of common quality awareness in the context of emergent fields of expertise (i.e. quality workshops and peer reviews). Dr Dittrich analysed the applicability of such models in the current context for discussing TVET-related expertise. He characterised the ongoing debate as an open dialogue that is proceeding towards a relatively open and flexible framework for addressing quality issues. On the basis of this situational assessment he argued for taking a community-based approach on the quality issues. On the basis of these background analyses Professor Clement discussed the possible organisational working concept of a future professional association and its main functions in promoting good quality master-level programmes in TVET to be introduced in diverse global regions.

Looking ahead

Dr Khin Zaw, Yangon Institute of Education, Myanmar, chaired the final session of the meeting. He invited the first speaker of the session, the Rapporteur-General, **Ms Karina Veal**, to take the podium. Ms Veal gave a summation speech encapsulating the main ideas and themes of the three-day meeting.

Professor Felix Rauner, on behalf of the scientific committee, presented a concluding reflection on the underlying issues for organising the conference and the key concerns that led to the choice of the focus. Then he focused primarily on the results of the working groups B and D. He considered it very important that a broad-based international forum expresses its support for the development of master-level programmes in TVET with a focus on vocational fields of specialisation. Furthermore, he considered it essential that this conclusion is supported by a corollary conclusion to promote quality awareness and research culture by setting up a new scientific and professional community.

Professor Shi Weiping, on behalf of a group that had been invited to prepare a draft “Hangzhou declaration”, presented the draft. The group consisted of representatives from the main global regions that were represented in the conference. The draft addressed the risks that were related to the development of VET. As a counter-strategy, the document emphasised the need to make transparent the innovative potentials of vocational and professional learning. This is closely linked to the corollary need to upgrade the competences and the academic recognition of VET professionals. Due to the lack of time for in-depth discussion it was proposed that any further suggestions be received after the session, before finalisation and distribution to the participants.

Mr Pekka Kämäräinen presented the organisational conclusions concerning the follow-up. Given the fact that the proposals concerning a new professional association and its field of activity were at an initial stage, it was proposed that a coordination committee should be elected to continue the preparation of the organisational concept and to support ‘regional’ follow-up measures. In the light of the preparatory work and the experiences with the conference the responsibility to coordinate the work of the committee was given to colleagues at Bremen University, specifically to Professor Felix Rauner (chairman) and to Dr Joachim Dittrich (secretary). Mr Kämäräinen presented a list of the candidates who had volunteered to participate as representatives of their regions or as experts in specific areas of interest.

International framework for masters degree for TVET teachers and lecturers

It is the common consensus of opinion that the professionalisation of TVET actors within the international scientific community is of crucial importance for the pro-active development of co-operative relations; between workforce training and the innovation processes and the application and implementation of the resulting ideas from the development process.

The international framework curriculum for a Master Degree in TVET aims to define:

- A set of quality criteria for the education of teaching and lecturing professional in initial and further education and training.
- To provide a basis for future international scientific co-operation
- To provide a basis for the mutual exchange of students, lecturers and scientists.
- To provide a framework that can form a basis for the mutual approval of students' credits.

Identified needs

Global economic competition increases the pressure to produce high-quality products. High-quality products and high-quality, high-value-added work are seen as being at the core of economic success for 21st century economies all over the world. This is emphasised by the increasing importance of ICT skills and knowledge. With these challenges, education, training and human resources development has become of outstanding importance for a sustainable and competitive development for almost every country worldwide.

Research on regional innovation systems has shown that technological, economic and social innovation processes are deeply embedded in regional milieus of actors and institutions. The trend of transforming colleges and institutions of training and education into regional centres of competence with a moderating and consulting function in those processes can be observed all over the world, despite cultural and institutional diversity. It holds for tailored courses for medium or large companies in industrialised contexts as well as for targeted skills training measures for the informal sector in the developing world.

Looking at in-company organisational development and restructuring, one can also see the increasing attention which is being paid to learning processes.

Training and education are more and more integrated into production and work-processes to achieve a balance between implicit experience-led learning and systematically contextualised training processes. This results in an upgrading of the sphere of direct value added work for individual learning careers. However, the sustainable exploration of learning potentials of work processes needs highly developed expertise in the optimal design of complex arrangements for teaching and learning.

In both instances, learning is seen more and more as a life-long and also 'life-wide' process, which not only takes place at the individual but also on the organisational level. Both aspects confront those who are responsible for the shaping and design of learning processes with new challenges. Their task is to equip learners with the ability for lifelong learning with meta- and self-directed-learning competencies - and to moderate and stimulate processes of organisational and regional learning.

Worldwide roughly two thirds of the workforce is qualified at the intermediate level which corresponds to technical and vocational education and training. Vocational education and training and human resources management can be seen as one of the key professions in the 21st century. Movements towards the professionalisation education and training can be found both in developed and developing regions.

The apparent paradox of simultaneous convergence and divergence of education and training can be observed in a global setting often labelled as 'Globalisation and Localisation'. However, economic processes have been increasingly overcoming national borders or other barriers. Despite nationally specific features, common product and process standards have become increasingly binding. International co-operation inside multinational enterprises and between global acting companies advances to a key issue of sustainable economic success.

The implementation of an international framework curriculum for a master programme in **Technical and Vocational Education and Training** will demonstrate the following merits.

- This defined standard will establish a basis for national and international accreditation of course programmes and allows for the development of an international credit transfer system;
- It will facilitate the international exchange of students, lecturers and scientists;
- It will encourage the development of international co-operation on TVET innovation and research;
- It allows for self-sustainable and long-term development of professional capacity in TVET;
- It helps to develop TVET to become an integrated force in national and regional innovation systems.
- It helps to promote vocational disciplines which embody gender equity/equality; intercultural understanding for student recruitment policy making processes.

Description of the masters degree.

The master course is targeted at graduate students in Vocational Education i.e. teachers, trainers, and lecturers.

Issued degree: Master in Technical and Vocational Education and Training (TVET)

Length of study: 90 to 120 Credits¹ according to national regulations.

The following table shows the 12 vocational disciplines. The lists of topics that are shown in the table are open lists. Also one or the other of the topics might be incorporated into another vocational discipline according to regional or national settings, e.g. catering might be a topic in Leisure, Travel and Tourism or in Agriculture, Food and Nutrition.

The minimum **entry requirements** are degrees or equivalent competences to the Bachelor level.

It is recommended to establish at the offering institution a commission which decides on issues concerning the study course, especially in terms of different career pathways and institutional settings in the different countries and of non-formal learning accreditation.

Vocational discipline	
Business and Administration	Production and distribution of goods Services Marketing, administration, finances, insurance Transportation, logistics, tourism ...
Production and Manufacturing	Manufacturing Mechanical engineering design Supply engineering / environmental engineering Automotive engineering ...
Civil engineering	Construction Wood Surface and coating technology ...
Electrical and Electronic Engineering and Information and Communication Technology	Production systems Building equipment Information and communication technology Media technology ...
Process Engineering and Energy	Applied sciences Energy conversion ...
Health Care and Social care	Health care Clinical care Personal hygiene Nursing.

¹ One credit is equivalent to a workload of 25 to 30 hours (according to the Bologna definition)

Vocational discipline	
Education and Culture	Child and youth care nursing education Adult education Special needs target groups Music and dance
Leisure, Travel and Tourism	Travel Sports Tourist services Catering and hospitality ...
Agriculture, Food and Nutrition	Agriculture Food production Domestic economy ...
Media and Information	Printing Electronic-advertising Electronic-customer-service Sales promotion
Textile and Design	Clothing production Fashion Interior design Art and craft
Mining and Natural Resources	Mining Oil and natural gas ...

Frame Curriculum

Studies of Education, TVET and Vocational Disciplines: 39 credits

Three of the modules have to be concluded with a written assignment which will be assessed according to defined criteria. One out of the Modules 2, 3 or 4 will be realised in project form and concluded with a project report. In each unit the student either has to write and present a paper or to take part in a written assessment.

Foundation studies

		credits
Module 1	Foundations, theories and structures of education, TVET and HRD	12
M1-01	Foundations and theories of education, TVET and HRD	3
M1-02	Institutional and technical pre-requisites of TVET and HRD	3
M1-03	TVET and HRD in a historical and cross-cultural perspective	3
M1-04	Learning in work-processes and working in learning-processes	3

Module 2	Shaping TVET connected to the vocational discipline	9
M2-01	Development and evaluation of vocational curricula, media and learning environments	3
M2-02	TVET in theory and practice: Foundations of vocational teaching and learning, innovation, development and organisation of learning-processes	3
M2-03	Human development, learning and education in the framework of initial education and lifelong learning within its societal context	3

Advanced Studies

		credits
Module 3	Teaching and learning in exemplary fields of practice	9
M3-01	Application of methods and techniques of educational and vocational research and development	3
M3-02	Teaching, coaching and moderation of learning in career education and workforce development. Assessment and analysis of individual learning styles	3
M3-03	Development and application of media and learning environments	3

Module 4	Management und evaluation of TVET and workforce development	9
M4-01	Evaluation, measurement and exploration of educational supply and demands	3
M4-02	HRD and organisational development in TVET and workforce development	3
M4-03	Planning and development of programmes and courses - Methods of exploring work-process-knowledge	3

Studies of the vocational discipline and its didactics: 18 credits

Foundation studies

		credits
Module 5	Vocational Discipline I	6
M5-01	Introduction to the vocational discipline, history of the vocational field, standards and qualifications	3
M5-02	Occupational analysis and Curriculum development	3

Advanced studies

		credits
Module 6	Vocational Didactics in the Discipline I	12
M6-01	Hands on planning, realisation and assessment of a teaching unit in the occupational discipline, application of discipline specific methods, media, and practical sessions.	9
M6-02	Learning in work-processes, occupational and work process studies and curriculum development	3

Further studies: 36 credits

		credits
Module 7:	Area of specialization in vocational discipline (working with specific research and development methodologies related	18

	to vocational disciplines)	
Model 8:	Area of specialization in vocational pedagogy: <ul style="list-style-type: none"> • Human resource development • International, comparative and cultural studies on TVET • Vocational Education for target groups with special needs • Assessment and evaluation 	18

Thesis: 15 credits

The student will propose a thesis' title and topic which has to be accepted by the Master's Committee. From the date of acceptance the Master's thesis has to be submitted within three months

		credits
Thesis	Individual topic	15

Practical studies: 15 credits

		credits
Practical Studies	Planning and organisation of learning, teaching and training	15

Organisational requirements

The Master Study Course will be run by a higher education institution or a consortium of such institutions, which is entitled to issue doctoral degrees under the regulations of the respective country.

Generally, to run master degree courses will develop (will be connected with) a certain amount of research capacity and a certain quality of research capabilities at the respective institutions. The same holds for the qualification of teaching personnel.

It is recommended, that several related occupational disciplines/domains are offered at an organisational entity, in order to assure quality by synergies.

International research cooperation has to be incorporated into the running of the course.

Formation of an international association of TVET professionals

The participants agree that there is an urgent need for the development of the international scientific community of TEVT scientists and professionals. Such process needs an International Association of TVET Professionals in order to improve quality of TVET and to facilitate professionalisation of TVET at the international level.

The participants suggest, that the course of action, which started in Hangzhou be continued on the way to establish the international scientific community in TVET. The support for this initiative, which was offered by UNESCO-UNEVOC during the conference, was greatly appreciated.

To proceed, the scientific committee, whose mandate ended with the Hangzhou meeting, is re-established and extended. The members were elected during the closing session. They represent regions from all over the world and both developing and developed countries.

Elected committee

Chair: Prof. Dr. Felix Rauner
Secretary: Dr. Joachim Dittrich

Members with regional responsibilities:

East Asia: Prof. Shi Weiping, Dr. Zhao Zhiqun, Dr. Zhang Jianrong

Central Asia: Dr. M. Mohammad Haghpanahi, Prof. Syed Zargham Haider

South-East Asia, Pacific: Prof. David Lim, Dr. Masriam Bukit, Prof. Dr. Jailani Bin MD Yunus

Other developing countries: Prof. Dr. Che Kum Clement, Ms. Naing Yee Mar, Dr. L. Efison Munjanganja

Americas: Prof. Richard L. Lynch, Ms. Ana María Rosende

Europe: Mr. Pekka Kämäräinen, Mr. Norman Lucas

Members with thematic responsibilities:

Quality: Mr. Leung Manwey Joseph

Tasks of this committee for the upcoming months will be to:

- facilitate discussions on the development, the tasks, structure, and organization of the future association in question.
- initiate the implementation of the association
- facilitate discussions on the implementation of master level degrees in TVET on the international as well as the regional level, and support the worldwide exchange of information on those processes
- prepare an international follow-up conference, where good and best practice examples should be exchanged and the progress in creating the international scientific community should be discussed

The participants hope, that these tasks can be carried out in cooperation and with support of the UNESCO-UNEVOC International Network. The incremental approach to establishing an international association was chosen to reflect the community development strategies, which should be used in order to have equal opportunities for all regions of the world to participate in shaping the international scientific community.

Programme for meeting

UNESCO International Meeting on Innovation and Excellence in TVET Teacher/Trainer Education

Hangzhou, China 8 – 10 November 2004

An experts meeting jointly organised by UNESCO-UNEVOC and UNESCO Office Beijing in partnership with the Chinese National Commission for UNESCO and the Chinese Ministry of Education.

Venue for all meeting sessions:

Radisson Plaza Hotel Hangzhou, 333 Tiyuchang Road, Hangzhou

Telephone: +86-571-8515-8888, Fax: +86-571-8515-7777

Website: www.radisson.com/hangzhoucn

Sunday	7.11.2004
10:00 – 18:00	Registration at Radisson Plaza Hotel, 333 Tiyuchang Road, Hangzhou Upon registration participants will be given all relevant information on the Meeting, associated events and the city of Hangzhou.
16:30	Meeting of Planning Group (Mr Maclean, UNESCO-UNEVOC; Ms Veal, UNESCO-UNEVOC; Ms Shen Yiling, China National Commission for UNESCO; Ms He Pei, UNESCO Office Beijing; Professor Rauner, Bremen University; Dr Dittrich, Bremen University; Representatives from local organising committee)
	Evening free for participants to enjoy Hangzhou

Monday	8.11.2004
08:00	Registration continues - Radisson Plaza Hotel
09:00	Opening session Chair: Mr Zhou Peizhi, Deputy Director of Xiacheng Education Bureau, Hangzhou Welcome addresses <ul style="list-style-type: none"> • Mr Du Yue, Deputy Secretary-General of Chinese National Commission for UNESCO • Ms Liu Yufeng, Deputy Director, International Cooperation and Comparative Education Research Division of Central Institute of Vocational and Technical Education, Ministry of Education, China on behalf of Mr Yu Zuguang, Director • Mr Rupert Maclean, Director of UNESCO-UNEVOC • Mr Sun Jianyong, Deputy Director of Hangzhou Xiacheng Government • Ms Lu Ruifeng, Vice Mayor of Hangzhou Municipal People's Government

09:30	<p>Introductory session</p> <p>Chair: Mr Rupert Maclean, UNESCO-UNEVOC</p> <ul style="list-style-type: none"> • Presentation of meeting objectives and programme • Arrangements regarding Chairpersons and Rapporteurs • Introduction to group sessions • Introduction to field visits
10:00	Short refreshment break. You are welcome to bring refreshments back into the meeting room
10:15	<p>Plenary 1: TVET Teacher/Trainer Education: Issues and Concerns</p> <p>Chair: Dr Siripan Choonmoom, Vocational Education Commission, Thailand</p> <ul style="list-style-type: none"> • Academic education of technical and vocational teachers in Peoples Republic of China: Professor Shi Weiping, East China Normal University, Shanghai • The international context for TVET teacher/trainer education and the changing requirements for teachers/trainers: Professor Felix Rauner, Bremen University, Germany <p>Presentations followed by discussion</p>
11:30	<p>Plenary 2: Views from the Field</p> <p>Chair: Professor Johanna Lasonen, University of Jyväskylä, Finland.</p> <p>Short presentations from various countries during which presenters will address the following two questions about their own country: a) how are TVET teachers currently trained, and b) what are the strengths and weaknesses of the current approach? Presentations followed by discussion.</p> <ul style="list-style-type: none"> • Malaysia. Professor Jailiani Yunos, Kolej Universiti Teknologi Tun Hussein Onn, Jahore • Chile. Ms Ana María Rosende, Centro de Formación Técnica DuocUC, Santiago • Indonesia. Dr Masriam Bukit, Technical Education Development Centre, Bandung • China. Professor David Lim, Vocational Training Council, Hong Kong • Thailand. Dr Siripan Choonmoom, Vocational Education Commission, Bangkok • Bangladesh. Associate Professor Che Kum Clement, Islamic University of Technology, Dhaka • Cambodia, Mr Bun Phearin, National Technical Training Institute, Phnom Penh • India, Professor S.Z. Haider, PSS Central Institute for Vocational Education, Bhopal • Lao PDR, Mr Soulikhamkone Sisoulath, Vocational Education Development Centre, Vientiane • DPR Korea, Dr Chae Ryang Il, Ministry of Education, Pyongyang
12:30	<p>Lunch break</p> <p>Sign up for group sessions during lunch break</p>
13:30	<p>Plenary 2: Views from the Field (continuation from before lunch)</p> <p>Chair: Professor Johanna Lasonen, University of Jyväskylä, Finland.</p>

14:30	<p>Plenary 3: TVET Teacher/Trainer Education: Prospects</p> <p>Chair: Dr Masriam Bukit, Technical Education Development Centre, Indonesia</p> <ul style="list-style-type: none"> • Common standards for qualifications for TVET teachers: Professor Richard Lynch, University of Georgia, USA • A curriculum framework for a masters study course in TVET: Mr Pekka Kämäräinen, Vocational Teacher Education College, Jyväskylä Polytechnic, Finland • Is there a need for an international association of TVET professionals? Mr Rupert Maclean, UNESCO-UNEVOC <p>Presentations followed by discussion A short break will be made at around 15:20 for refreshments that can be bought back into the room</p>
16:00	End of day 1
16:20	Assemble in lobby of Radisson for buses for sightseeing and journey to restaurant.
18:00	Dinner hosted by the Chinese National Commission for UNESCO: Shanwaishan Restaurant

Tuesday	9.11.2004
08:15	Meeting of Planning Group (Secretariat Room)
09:00	<p>Group Sessions. Participants choose between the following two options:</p> <p>Group A: What are the expectations (standards) of a good TVET teacher/trainer?</p> <p>Moderator: Veronica Volkoff, RMIT University, Australia Rapporteur: Mr Efison Munjanganja, UNESCO Bangkok</p> <p>A roundtable discussion that draws on the perspectives of participants focusing on the desirability/feasibility of adaptive standards for TVET teacher/trainers. Thematic discussion starter contributions by:</p> <ul style="list-style-type: none"> • Professor Peter Gerds, University of Bremen, Germany; • Dr Zhao Zhiqun, Central Institute of Vocational and Technical Education, China; and • Dr Norman Lucas, University of London, UK

	<p>Group B: How might a higher-level degree in TVET be structured? Moderator: Dr Felix Rauner, Bremen University, Germany Rapporteur: Mr Leung Man Wei, Hong Kong Institute of Vocational Education, China</p> <p>A roundtable discussion drawing on the perspectives of participants focussing on the possible entry requirements, structure and curriculum framework for a masters level programme in TVET. Thematic discussion starter contributions by:</p> <ul style="list-style-type: none"> • Dr Zhang Jianrong, Vice Director, Institute of Vocational Instructors of Tongji University, Shanghai, China; • Dr Joachim Dittrich, Bremen University, Germany and • Mr Pekka Kämäräinen, Vocational Teacher Education Council, Finland
10:30	Refreshment break
11:00	<p>Group Sessions (continued) Group A continues: Small group work to develop ideas on expectations of a good TVET teacher/trainer Group B continues: Small group work to develop ideas for a framework for a higher degree course with international applicability.</p>
12:00	<p>Report back sessions for Groups A & B. Chair: Ms Karina Veal, Rapporteur-General</p>
12:30	Lunch break
13.45	Assemble in lobby of Radisson hotel for bus to field visits
14:00	<p>Field Visits. 1. Hangzhou Vocational and Technical College 2. Vocational and Technical Education College, Zhejiang University of Technology 3. Hangzhou Silk Museum After the field visit we will continue straight on to dinner.</p>
19:00	Dinner hosted by UNESCO-UNEVOC: Wenyong Restaurant

Wednesday 10.11.2004	
08:15	Meeting of Planning Group (Secretariat Room)
09:00	<p>Group Sessions.</p> <p>Participants choose between the following two options:</p> <p>Group C: What short courses and other strategies can improve TVET teacher/trainer performance?</p> <p>Moderator: Dr Mohammad Haghpanahi, University of Applied Science & Technology, Iran</p> <p>Rapporteur: Professor Johan van der Sanden, Eindhoven, University of Technology, the Netherlands</p> <p>A roundtable discussion drawing on the perspectives of participants focusing on describing and defining successful approaches for developing countries. Thematic starter contributions by:</p> <ul style="list-style-type: none"> • Mr Efison Munjanganja, UNESCO Bangkok • Professor Peter Gerds, University of Bremen, Germany • Ms Liu Yufeng, Central Institute for Vocational and Technical Education, China; and • Professor N. McCaslin, Ohio State University, USA
09:00	<p>Group D: How might new higher-level programmes be accredited, and what role for an international association for TVET professionals?</p> <p>Moderator: Professor Richard Lynch, Ohio State University, USA</p> <p>Rapporteur: Dr Radevšek-Pučko, Univesity of Ljubljana, Slovenia</p> <p>A roundtable discussion drawing on the perspectives of participants focussing on quality assurance, accreditation issues for a masters level programme and the possibility of establishing an international association of TVET professionals. Thematic starter contributions by:</p> <ul style="list-style-type: none"> • Dr Joachim Dittrich, Bremen University, Germany • Dr Johanna Lasonen, University of Jyväskylä, Finland. • Dr Che Kum Clement, Islamic University of Technology, Bangladesh
10:30	Refreshment break
11:00	<p>Group Sessions (continued)</p> <p>Group C continues: Small group work to develop strategies for professionalizing TVET/teachers/trainers in diverse settings.</p> <p>Group D continues: Small group work to develop strategies for quality assurance and accreditation</p>
12:00	<p>Report back sessions for groups C and D.</p> <p>Chair: Ms Karina Veal, Rapporteur-General</p>
12:30	<p>Lunch break</p> <p>UNEVOC Centres and Candidate Centres will take a separate working lunch to discuss issues of mutual interest concerning strengthening and upgrading the world-wide UNEVOC Network. Venue: Jinzhou Room, 3rd floor, International Hotel</p>

14:00	<p>Special Keynote Address. The present state, reform and development of vocational and technical education for teacher/trainers in Zhejiang Mr Shi Dandan, President of Zhejiang University of Technology, China</p>
14:30	<p>Plenary 4: Summation; and, where do we go from here? Chair: Dr Khin Zaw, Yangon Institute of Education, Myanmar</p> <ul style="list-style-type: none"> • Summing up of proceedings of UNESCO International Meeting: Ms Karina Veal, Rapporteur-General • Presentation of modality for, and a recommendation, to UNESCO-UNEVOC for a Framework for a Masters Level Study Course in TVET • Presentation of modality for, and a recommendation to UNESCO-UNEVOC for an International Association for TVET Teacher/Trainer Education • Hangzhou Declaration on Strengthening and Upgrading TVET Teacher/Trainer Education; for consideration by UNESCO-UNEVOC and UNESCO Beijing
15:45	<p>Closing Session Chair: Chinese National Commission for UNESCO</p> <ul style="list-style-type: none"> • Representative from Chinese Ministry of Education • Senior participant from meeting • Satoko Yano, on behalf of Mr. Y. Aoshima, Director of UNESCO Office Beijing
16:15	<p>End of Meeting Departure of participants</p>

List of participants

Ms. Ana María Rosende

Methodological counsellor, Mecesup Project
School of Business and Administration, Centro de Formación Técnica DuocUC
Alonso de Ovalle 1526 Santiago, Chile
Tel. +56-2-3540652 Fax +56-2-3540650
Email arosende@duoc.cl

Bao Jie

Director, Institute of Higher Vocational Education of Beijing Union University
P.R. China
Tel. +86-10-6490 0126

Dr. Mr. Bibhuti Roy

Associate Teacher, Institut Technik und Bildung, Universität Bremen, Germany
Tel. +49-421-218 2758 Fax +49-421-218 9019
Email biroy@uni-bremen.de

Bu Jiexiong

Dean, Community Educational Institute of Xiacheng District
Hangzhou, P.R. China
Tel. +86-571-8533 7052

Mr. Bun Phearin

Director of National Technical Training Institute, Russian Blvd. Sankat Thuktla, Khan Russey Keo,
Phnom Penh, CAMBODIA
Tel. +855-12-844 741
Email ntti_phearin@everyday.com.kh

Dr. Chae Ryang Il

Senior Adviser, Ministry of Education
D.P.R. Korea

Dr. Che Kum Clement

Assistant Professor TVET, Islamic University of Technology,
Dhaka, Bangladesh
Email ieres2001@yahoo.com

Chen Weiguang

Deputy Director of Technical and Vocational Education
Zhejiang Provincial Education Bureau, P.R. China
Tel. +86-571-8800 8862

Ms. Cveta Razdevšek-Pučko

Dean, Faculty of Education, University of Ljubljana
Kardeljeva pl. 16. SI-1000 Ljubljana, Slovenia
Tel. +386-01-589 2303 Fax +386-01-589 2233
Email cveta.pucko@uni-lj.si

Prof. Dr. D. Pillay (Gansen)

Director, Research Management and Development, Durban Institute of Technology, South Africa
Tel. +27-31-204 2576, Fax +27-31-204 2946
Email Gansen@dit.ac.za

Prof. Mr. David Lim

Vocational Training Council, Hong Kong, China
Tel. +852-2836 1915 Fax +852-2574 5284
Email dlim@vtc.edu.hk

Mr. Du Yue

Deputy Secretary-General, Chinese National Commission for UNESCO
37 Damucang Hutong, Xidan, Beijing, China 100816
Tel. +86-10-6609 6989 Fax +86-10-6601 7912
Email natcomcn@public3.bta.net.cn

Ms. Duger Bujinlham

Team Leader of UNEVOC Center of Mongolia, Skills project specialist
UNEVOC Centre, Post Box-462, Ulaanbaatar- 211213, Mongolia
Tel. +976-11-311 635 Fax +976-11-311 635
Email nob@must.edu.mn

Mr. Fan Dayue

Assistant Director of International Education Dept.
Shenzhen Polytechnic (SZPT), 5/F, Administration Building, East Campus of SZPT, Shenzhen, P.R.
China
Tel. +86-755-2673 211 Fax +86-755-2673 211
Email fandayue@szpt.net

Mr. Fan Qi

President of Hangzhou Mingzhu Education Group
No. 1, Shigu Lane, Hangzhou, 310014 P.R. China
Tel. +86-571-8538 2045

Prof. Dr. Felix Rauner

Director, Institut Technik und Bildung, Universität Bremen Am Fallturm 1
28359 Bremen, Germany
Tel. +49-421-218 4634 Fax +49-421-218 4637
Email itbs@uni-bremen.de

Dr. Mr. Frank Buening

Field Leader of International Cooperation of Technology
and Education, Institut für Berufs- und Betriebspaedagogik
Otto-von-Guericke-University, Postfach 41 20, D-39016 Magdeburg, Germany
Email frank.buening@gse-w-uni-magdeburg.de

Gao Lin

Vice President of Beijing Union University
P.R. China
Tel. +86-10-6490 0078

Prof. Dr. Gerd Diethelm

Academic Adviser & German Project Manager
Institute of Vocational Instructors of Tongji University
1239 Siping Lu, Chinese-German Building, Room 1108
Shanghai 200092, P.R. China
Tel. +86-21-6598 5145 Fax +86-21-6598 5144
Email gerd.diethelm@gtz.de

Ms. He Pei

Education Programme Assistant, UNESCO Office Beijing
Waijiaogongyu 5-15-1, Jianguomenwai Compound, Beijing, 100600, China
Tel. +86-10-6532 2449 Fax +86-10-6532 4854
Email p.he@unesco.org

Ms. Heli Mattisen

Academic Vice Rector, Tallinn Pedagogical University (TPU)
25 Narva Road, Tallinn 10120, Estonia
Tel. +372-640 9104 Fax +372-640 9116
Email mattisen@tpu.ee

Hong Yongkeng

Party Secretary of Hangzhou Vocational & Technical College
P.R. China
Tel. +86-571-8691 6838 Fax +86-571-8691 6838

Huang Jianmin

Chief of High School Division, Hangzhou Municipal Education Bureau
P.R. China
Tel. +86-571-8722 6837

Huang Wei

Deputy Director, Hangzhou Xiacheng District Education Bureau
P.R. China
Tel. +86-571-85337066

Dr. Mr. Hubert Smuda

Vocational training of plant operators, BASF HR Greater China
Shanghai PR China
Email smudah@basf-china.com.cn

Dr. Ignaz Rieser

Project Manager and Resident Representative, Swisscontact in Nepal
GPO Box 15150, Kathmandu Nepal
Tel. +977-1-6630 740, Fax +977-1-6630 639
Email ir@swisscontact-nepal.org.np

Prof. Dr. Jailani Bin MD Yunos

Associate Professor , Kolej Universiti Teknologi Tun Hussein Onn
Parit Raja, Batu Pahat, Johore, Malaysia
Tel. 07-454 1050 Fax 07-454 1050
Email jailani@kuittho.edu.my

Dr. Mr. Joachim Dittrich

Institut Technik und Bildung, Universität Bremen
Am Fallturm 1, 28359 Bremen, Germany
Tel. +49-421-218 4650 Fax +49-421-218 4637
Email dittrich@uni-bremen.de

Prof. Johan M. M. van der Sanden

Eindhoven University of Technology TULO, Fontys University of professional Education, PO BOX
513 5600 MB Eindhoven, The Netherlands
Tel. 31402474191 Fax 31402475379
Email j.m.m.v.d.sanden@tue.nl

Prof. Ms. Johanna Lasonen

Institute for Educational Research, PO Box 35 (Keskussairaalantie 2)
FIN - 40 014 University of Jyväskylä, Finland
Tel. +358-14-260 3307 +358-40-527 9407
Email johanna.lasonen@ktl.jyu.fi

Ms. Karina Veal

Visiting Fellow, UNESCO-UNEVOC International Centre
for Technical and Vocational Education and Training
Goerresstr. 15 53113 Bonn, Germany
Tel. +49-228-2-433 713 Fax +49-228-2-433 777
Email k.veal@unevoc.unesco.org

Dr. Khin Zaw

Rector of Yangon Institute of Education, Ministry of Education
Pyay Road, Yangon, Myanmar
Email rectoryioe@mptmail.net.mm

Prof. Dr. Klaus Jenewein

Otto-von-Guericke-Universität Magdeburg, Institut für Berufs- und Betriebspädagogik, Germany
Email klaus.jenewein@gse-w-uni-magdeburg.de

Dr. L. Efison Munjanganja

Programme Specialist in TVE, APEID, UNESCO Bangkok Office
Tel. +662-391 0577 Fax +662-391 0866
Email e.munjanganja@unevoc.unesco.org

Mr. Leung Manwey Joseph

Education Advisor, Hong Kong Vocational Training Council
Hong Kong Institute of Vocational Education
30, Shing Tai Road, Chaiwan, Hong Kong, China
Tel. +852-2595 8113 Fax +852-2505 4216
Email Mwjleung@vtc.edu.hk

Ms. Liu Yufeng

Deputy Director, International Cooperation and Comparative Education Research Division, Central
Institute for Vocational and Technical Education
Ministry of Education, 40A Damuccang Hutong, Xidan, Beijing 100032, China
Tel. +86-10-6609 7116 Fax +86-10-6603 9993
Email yufengliu_0408@yahoo.com

Lu Xuebiao

Director of Zhejiang West Lake Vocational Institute of Technology
Hangzhou, P.R. China
Tel. +86-571-8707 4847

Dr. M. Mohammad Haghpanahi

Chancellor, University of Applied Science and Technology
P.O.Box: 14155-1644 Tehran, Iran
Tel. +98-21-896 9678 Fax +98-21-896 9678
Email mhaghpanahi@yahoo.com

Ms. Mariela Henriquez Repetto

Directora Alterna Proyecto Mecesup DUO 0202
Instituto Profesional DuocUC, Alvarez 2366. Viña del Mar, Chile
Tel. +56-32-268 672
Email mhenriquez@duoc.cl

Dr. Masriam Bukit

Director, Technical Education Development Center, Bandung
PO. Box 1260, Cimahi 40013, Bandung, Indonesia
Tel. +62-22-665 7431, Fax +62-22-665 4698
Email masriambukit@yahoo.com

Mi Xiaoying

Director, Beijing Institute of Technology, P.R. China
Tel. +86-10-68912315

Prof. N. L. McCaslin

Professor and Site Director, National Centers for Career and Technical Education, The Ohio State
University, 1900 Kenny Rd., Columbus, Ohio, USA
Tel. 614.247.7964 Fax 614.688.3258
Email mccaslin.2@osu.edu

Ms. Naing Yee Mar

GloCorp NVstrategy / impact improvement
Prins Frederik Hendriklaan 88, 1411 GB Naarden, The Netherlands
Phone: +31-35-6991999 Fax: +31-35-6991992
Email naing.yee.mar@glocorp.com

Dr. Norman Lucas

Institute of Education, University of London, London United Kingdom
Tel. 4420 7612 6761 Fax 4420 7612 6766
Email n.lucas@ioe.ac.uk

Mr. Pekka Kämäräinen

Researcher, Institut Technik und Bildung, Universität Bremen, Am Fallturm 1
28359 Bremen, Germany
Tel. +49-421-218 4650
Email pkamar@itb.uni-bremen.de

Mr. Peter Collingro

Senior Adviser, Basic and Further Education for Vocational School Directors
Chongshan Donglu 46-2A, Shenyang, 110032, P.R. China
Tel. +86-24-8689 6441 Fax +86-24-8689 6440
Email Peter.Collingro@gtz.de

Prof. Dr. Peter Gerds

Head of Dept. Institut Technik und Bildung, Universität Bremen, Am Fallturm 1
28359 Bremen, Germany
Tel. +49-421-218 4641
Email gerds@uni-bremen.de

Qu Zhengliang

Vocational & Technical Educational Institute of Hunan Agricultural University
P.R. China
Tel. +86-731-4617009 Fax +86-731-4617046

Prof. Rao Yilun

Vocational & Technical Educational Institute of Hunan Agricultural University
P.R. China
Fax +86-731-4617046

Prof. Richard L. Lynch

Professor, University of Georgia
850 College Station Road, Athens, GA 30602, USA
Tel. 706 542-4688 706 542-4631 Fax 706 542-4669
Email rlynch@coe.uga.edu

Mr. Ruebiger Funk

Tel. +86-791-8333310
Fax +86-791-8313541
Email Ruediger.Funk@gtz.de

Mr. Rupert Maclean

Director, UNESCO-UNEVOC International Centre
for Technical and Vocational Education and Training
Goerresstr. 15, 53113 Bonn, Germany
Tel. +49-228-2-433711 Fax +49-228-2-433777
Email r.maclean@unevoc.unesco.org

Ms. Satoko Yano

Assistant Programme Specialist for Education, UNESCO Office Beijing
Waijiaogongyu 5-15-1, Jianguomenwai Compound, Beijing, 100600, China
Tel. +86-10-6532 2449 Fax +86-10-6532 4854
Email s.yano@unesco.org

Ms. Shen Yiling

Deputy Division Chief of Education Section, Chinese National Commission for UNESCO, 37
Damucang Hutong, Xidan, Beijing, China 100816
Tel. +86-10-6609 6989 Fax +86-10-6601 7912
Email natcomcn@public3.bta.net.cn

Shi Dandan

President of Zhejiang University of Technology
P.R. China

Dr. Mr. Shi Weiping

Professor and Director, Institute of Vocational & Adult Education
East China Normal University, Shanghai, 200062 China
Tel. +86-21-6223 2630 Fax +86-21-6223 2157
Email wpshi@ses.ecnu.edu.cn

Mrs. Siripan Choonmoom

Executive Consultant, Vocational Education Commission
Ministry of Education, Bangkok 10300, Thailand
Tel. +66-2-282 4832 +66-2-281 5555 ext. 1816
Fax +66-2-282 2428 +66-2-282 4832
Email siripanch@hotmail.com

Mr. So Ryong Chol

Programme Officer
Ministry of Education
D.P.R. Korea

Mr. Soulikhamkone SISOULATH

Director of Vocational Education, Development Center (VEDC),
Lao PDR
Email vedc@hotmail.com

Prof. Syed Zargham Haider

Joint Director, PSS Central Institute of Vocational Education
131, Zone-II, M.P. Nagar, Bhopal – 11 (INDIA)
Tel. +91-755-257 4494 Fax +91-755-255 8128
Email psscive_bhopal@yahoo.co.in

Tao Qiuyan

Vice Dean, Management College of Beijing Union University
P.R. China
Tel. +86-10-6490 0711

Veronica Natalie Volkoff

Program Manager, Post Compulsory Education and Training Research Centre
School of Education, Royal Melbourne Institute of Technology University (RMIT), GPO Box 2476V,
Melbourne 3001, Australia
Tel. +61-3-9925 3329 Fax +61-3-9925 3045
Email veronica.volkoff@rmit.edu.au

Ms Wang Lan, Msc

WL Intercultural Communication
Bremen, Germany
Email: wanglan@t-online.de

Wang Libing

Zhejiang University
P.R. China

Wang Ruihua

Deputy Chief of High School Division
Hangzhou Municipal Education Bureau
P.R. China
Tel. +86-571-8708 7270

Wo Binfeng

Deputy Chief of Study Management Division
Tourism College of Zhejiang, P.R. China
Tel. +86-571-8283 8076

Wu Xueping

Assistant Professor, Zhejiang University, P.R. China
Tel. +86-571-8825 3385

Wu Zuowei

Chief of Higher Teacher Education Division, Hangzhou Municipal Education Bureau, P. R China
Tel. +86-571-8702 3752

Prof. Xu Shuo

Institute of Vocational Instructors, Tongji University Shanghai, China
Tel. +86-21-6598 5105

Xu Xinqing

Zhejiang Educational Institute, P.R. China
Mobile: +86-13588044011

Ying Jianhua

Director General, Huangzhou Municipal Education Bureau
P.R. China
Tel. +86-571-8722 6832

Ying Wenliang

Zhejiang University of Technology, P.R.China
Mobile: +86-13605719176 Fax: +86-571-8836 1017

Dr. Mr. Zhang Jianrong

Vice Director, Institute of Vocational Instructors
Tongji University, Shanghai, P.R. China
Tel. +86-21-6598 8567 Fax +86-21-6598 0012
Email zhangjr@mail.tongji.edu.cn

Dr. Mr. Zhao Zhiqun

Associate Professor and Division Director of the Teaching and Learning Process
Central Institute of Vocational and Technical Education, Xidan Damucang Hutong 40A, 100032
Beijing, P.R.China
Tel. +86-10-6609 6585
Email zhiqunzhao@263.net

Zhou Peizhi

Deputy Director, Hangzhou Xiacheng District Education Bureau
P.R. China
Tel. +86-571-8533 7056