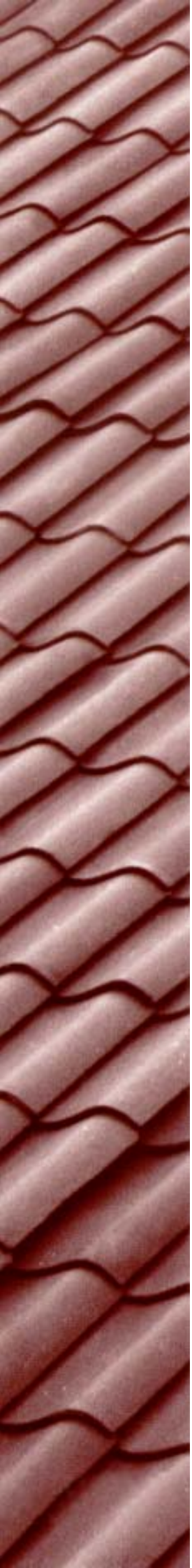

SKAT

Swiss Centre for Development Cooperation in Technology and Management

MCR Micro Concrete Roofing
RAS / basin Roofing Advisory Service
MEPI Monitoring Evaluation Planning Implementation

MEPI 2000
INTERNATIONAL MCR PROGRESS REPORT

Latin America, Asia (without India), India, Eastern Africa, Western Africa, Southern Africa

SKAT / RAS Centre Progress Report Level 4 — D. Schwitter / C. Lüthi

International MCR / RAS Supervisors — July 2001

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I INTRODUCTION

1 Introduction

The MEPI (Monitoring Evaluation Planning Implementation) System mapping the dissemination of MCR (Micro Concrete Roofing) technology was introduced by SKAT/RAS in 1994. Since then, MEPI has been continuously developed in collaboration with all partners promoting MCR and it is now in its 6th year.

MEPI enables a systematic assessment of the status of global MCR development.

- Trends can be analysed enabling an adjustment of implementation strategies towards sustainable results.
- The system facilitates communication between all stakeholders - from the field projects to the backstopping agencies. In addition,
- it forms the basis for a systematic and reliable reporting. MEPI provides the basis for the presentation and discussion of dissemination strategies as well as the discussion of new research results. The system also allows donors to assess the impact of their long-term investments on a yearly basis.

This MEPI report is almost certainly also the last such report as SDC – RAS project funding is drawing to a close. International, regional and country MEPI reports have been compiled yearly since 1995. They are unique in that they are the only comprehensive progress report describing MCR activities periodically and systematically at a global level. As a result, the exchange and collaboration among worldwide leading specialists in the field of Micro Concrete Roofing, allows the observation of the programme as a whole and allows a closer look at specific regions.

2 Executive Summary

Main findings

MCR is a fully developed technology that has undergone rigorous assessment over many years against demanding socio-cultural, environmental and technical standards. The technology has passed many tests with flying colours. It is widely recognised as a durable and practical form of roofing, one that encourages sustainable use of local resources while offering many opportunities for enterprise and job creation.

Ten years after inception, the worldwide dissemination of MCR technology has reached an altogether positive level, albeit with regional differences. It has gone through a phase of sustained growth, starting with 65 workshops and 400 employed back in 1990, growing to today's 1250 operating workshops and almost 8000 jobs in the year 2000. An estimated 1000 additional entrepreneurs are producing MCR tiles outside the RAS / MEPI network (ref. Annex 3). Also, taking into account material suppliers and equipment dealers a further 4000 jobs can be added. This growth has been achieved thanks to a number of factors, of which close supervision and international networking by the Roofing Advisory Service (RAS) and the continued support and nurturing of this technology by SDC and other international donors, need to be highlighted.

Compared to last year's MEPI 1999 report, the past year has seen consolidation taking place in most markets and an increasing productivity of most workshops. Worldwide, 46 new workshops have been created with a total of 375 new jobs. Total production of MCR tiles in square metres has increased from 19 millions to 22.6 millions of m^2 (+18%). India and Latin America are MCR's main growth regions, while Africa and the rest of Asia are currently stagnating.

The global situation for SMEs producing building materials, in particular MCR, has not changed much since last year. There is a general picture emerging, though:

- Regions that have benefited or are still benefiting from sustained technical and management support by a diversity of actors including RAS/SKAT and specialised NGOs or educational institutions were able to expand operations. This is evident in the number of new workshops being set up, the number of new jobs being created and the growing output of MCR tiles. Countries like India or Peru are cases in point.
- Regions or countries that have not been benefiting from external support are stagnating or consolidating at a very low level. In these regions, MCR has not been able to penetrate the roofing market and the local building material markets remain shallow.
- MCR production in regions that have been hit by natural disasters in the recent past (e.g. Central America, India) and that dispose of a vibrant MCR network have managed to position themselves as viable suppliers of building materials in the post-disaster reconstruction phase (see chapter 3.1 Latin American Network).
- The dissemination of MCR technology has prepared the ground for the process of diversification into other building material production, e.g. CEB (Compressed Earth Blocks), paving slab tiles, interlocking bricks, etc. In addition to this, many of formal building material producers also expanded into estate developers and builders. This process is successfully initiated respectively applied in countries and regions, where the dissemination of the MCR technology has reached the break through

point. Diversification has also become a major solution to overcome the problem of economic crisis.

- The value of MCR sold at a global level is estimated a 12 million US$ in the year 2000.
- SDC investment in RAS over the past years has considerably assisted the success achieved so far. From a financial point of view, SDC has invested roughly SFr. 1'500. - per job created in MCR production, which is quite a good ratio compared to other employment creation programmes.

Main Recommendations

Past experience has shown that the key to expanding production is access to information and the existence of a vibrant regional and international network. It is therefore recommended that additional targeted support beyond 2001 should be provided to give added value to support the regional and international networks. Specifically, four products could be considered:

- Q+A services
- the co-financing of newsletters such as basin News
- the knowledge sharing and management via electronic information systems
- the support for networking with a yearly seminar/information exchange.

These inputs would go a long way in supporting the MCR international network beyond the close of SDC/RAS funding with a minimum intervention input.

Lessons Learnt

The analysis of successful countries in introducing MCR technology provided in chapter three shows that four "magic bullets" are necessary for mainstreaming MCR materials:

(i) networking,
(ii) structured technical training,
(iii) marketing & business management skill training,
(iv) a national certification scheme,
(v) quality control, and
(vi) continuous promotion.

Countries where all six criteria are catered for are the most successful and have the biggest market penetration, countries where only one or two criteria are met, fail to expand their markets.

3 Background

One of the most important issues challenging the countries of the South is the management of population growth together with rapid urbanisation. This situation is responsible for the increasing demand for appropriate and affordable building materials for the construction of private as well as public buildings and facilities. Ever growing unemployment rates on the other hand call for labour intensive, income generating production processes.

Against this background, SKAT conducted a comprehensive investigation in 1985, which confirmed the potential for the introduction of Fibre respectively Micro Concrete Roofing (MCR) tiles in developing countries. As a result of this and in line with its respective sector policy, the Swiss Development Cooperation agreed to support the proposed FCR Roofing Advisory Service (FAS) which later became the Roofing Advisory Service (RAS).

In 1988, SKAT, GATE, CRATerre and ITDG established the basin (Building Advisory Service and Information Network) which, as a matter of fact, is an offspring of RAS and provides a wider range of advisory services in building construction. Furthermore it creates additional opportunities and synergy, and allows focusing in the field of technology management. Within basin, SKAT is among other tasks in the field of construction responsible for the Roofing Advisory Service specialised in the MCR technology.

At the inception of the project the network consisted mainly of a strong hub (RAS) to which MCR pilot projects were linked like spokes. Over time the network has developed to sub-networks at a regional and national level where intermediaries/private supporting agencies, consultants, etc.) are the link to target groups, which include local entrepreneurs and customers/users. The hub (RAS) has become of less importance, especially since regional and national capacities have been built up and thanks to a series of well established manuals as well as the promotion and dissemination of the MCR technology.

Of course there is also a growing demand for shelter in developing countries – especially in urban and peri-urban areas. Micro Concrete Roofing allows augmenting the supply of building materials within pressing resource constraints found in most areas of the developing world, while at the same time creating wealth and local employment. The lessons drawn from the past years of MEPI monitoring must be taken into account when devising future marketing strategies for MCR and similar building materials

4 MEPI Overview

PROJECT	MEPI Monitoring Evaluation Planning Implementation of MCR at global level
PROMOTERS	SDC Swiss Agency for Development and Co-operation
IMPLEMENTED BY	SKAT Swiss Centre for Development and Co-operation in Technology and Management, in collaboration with partners of the South.
MEPI's OBJECTIVES	Long Term: To ensure sustainability and expansion of successful achievements in the promotion of SMEs, in particular MCR. Mid Term: To add value to Southern Partners by sharing reputation, capacity building, quality control and organisational advice, and facilitating the flow of South-South synergies. Short Term: To support professional management at all levels. To generate and exchange information on MCR, including international cost/benefit analysis and responses to needs at the different project levels
COVERAGE* LEGEND: Indian Network Asian Network West African Network East African Network Latin American Network	 Asia and India  West Africa, East Africa and Southern Africa  Latin America

*Countries with high potential and ongoing MCR production that are not covered (or only partly covered) by MEPI: Brazil, Mexico, Nepal, Sri Lanka, RSA, Ethiopia, Mozambique, and Zambia

II INTERNATIONAL RAS - PROGRESS REPORT

1 Findings and Conclusions

1.1 Entrepreneur Development

An increase in the number of new entrepreneurs is reported in the past year from 1211 workshops in 1999 to 1257 workshops in 2000. Most new enterprises were set-up in India. Other regions have remained stagnant or in certain countries a consolidation of the market has taken place with substandard producers closing shop. An estimated 1000 additional entrepreneurs are producing MCR tiles outside the RAS/MEPI network. The number of employees has again increased by about 400 employees worldwide. Between 1995 and 2000, direct employment has doubled, rising from around 4000 employees to almost 8000 directly employed in 2000. Also, taking into account material suppliers and equipment dealers a further 4000 jobs can be added. In addition, one must also add construction-related indirect employment generated by MCR production, which is rather difficult to quantify (carpenters, roof-layers, material transport, etc.).

Analysing the ratio of tile production per employee, one can easily see that productivity is steadily on the rise. More tiles per employee are being produced annually, a trend that underlines the growing maturity and competitiveness of the MCR product in competition with other roofing materials. Figure 1 below shows that all indicators are still growing strong, but it is especially employment that shows above average growth rates.

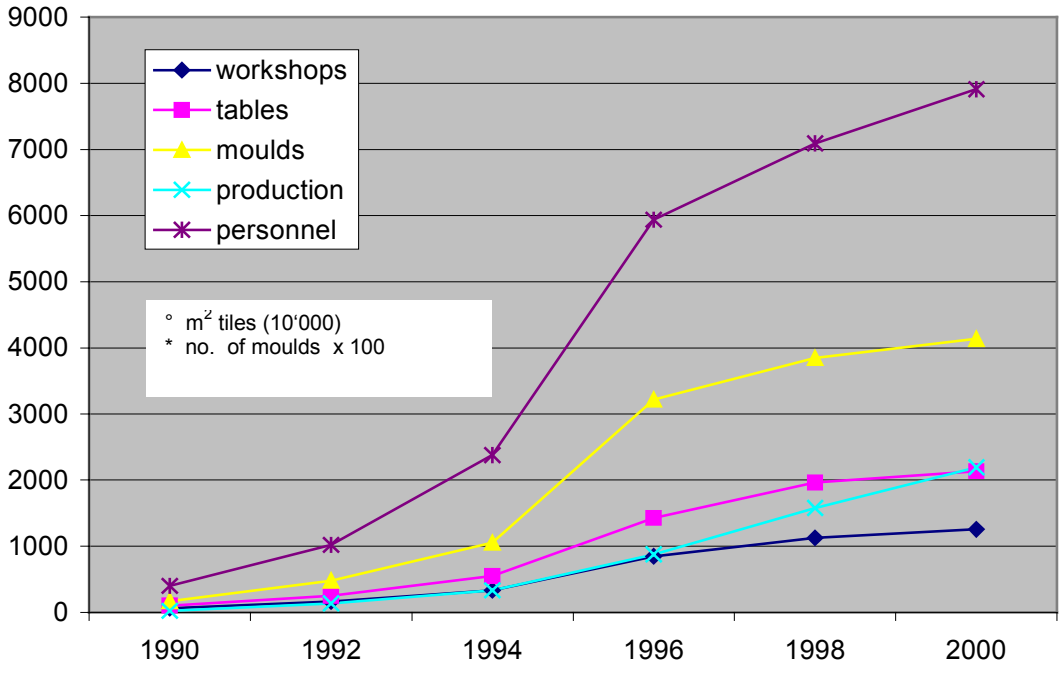


Figure 1 : Entrepreneur Development 1990 – 2000

1.2 Market Development & Marketing

Especially in India and Latin America, the three main indicators for growth in the MCR industry are showing positive signs: productivity, number of workshops set up and number of workers employed. The Far East is showing first signs of recovery from a long economic depression but the construction sector will take some time to move out of the prolonged slump. The most impressive growth rates are reported from India. Countries where considerable promotional and network activities were carried out are now reaping the benefits in the form of improved market access (e.g. Philippines, India, and LA-countries). MCR producers that fail to improve their marketing and organise themselves in associations or networks are registering stagnation or mediocre growth (East African Countries). Countries where external assistance has offered the opportunity to carry out large-scale social housing or social infrastructure projects (e.g. Peru, India, Laos, etc.) have witnessed a boost in market development and improved product awareness. The examples provided in the annex are cases in point.

Often the user is not part of the demand-supply cycle - especially in govt. housing programmes or the like. This is a fragile set-up, which breaks after every completion of a programme/project, and fresh efforts are required for each new project. Presently, the key to demand generation remains with the policy maker or the architect. Hence it remains driven by individuals. Since it is programme/project specific and individual driven, if either of them moves away, the demand falls flat in most of the cases. This cycle of boom and bust needs to be overcome if MCR is to become a viable long-term roofing option in mature building material markets.

1.3 Diversification

Experience in the past has shown that MCR producers usually go through two to three stages of production, constantly diversifying along the way. The first stage is the production and sale of MCR tiles only. After market introduction the entrepreneur quickly realises that no production unit can rely on one product only, hence he starts diversifying. The second stage sees the introduction of new product lines including cement blocks for walling or other cement block products (paving tiles are also very popular). Many entrepreneurs the world over have entered and been able to penetrate building material markets with this kind of set-up.

Another set of entrepreneurs graduate still further and add the construction business as part of their portfolio, thus providing a complete package from materials to construction – turnkey solutions as such. These entrepreneurs know their markets and are able to compete with informal builders because they can offer competitive building material pricing. Again, this development is encouraging as it allows building material producers to enter new market segments and create new jobs along the way.

1.4 MCR Network

The world-wide MCR network today consists of an increasing number of partner organisations working in more than 40 countries (Ref. Annex 2: Global Situation of MCR Network and Annex 3: List of RAS MEPI Network Partners). The MCR network has today developed sub-networks at regional level, where intermediary agencies and private consultants are the link to target groups including local entrepreneurs and customers/users. Thanks to the various MCR manuals and technical briefs and the access to the basin website, national and regional capacities have been built up and these regional networks are less dependent on the hub (RAS/SKAT). This has also enabled various services to be decentralised; e.g. the

question and answer service could increasingly be decentralised to network partners in the South.

The basin network, which encompasses the MCR network, focuses on developing enabling and people-centred policy approaches, reviewing standards and regulations, training programmes for technology awareness and construction, information dissemination and targeted research and development programmes. Generally speaking, networking is quite strong in Asia and Latin America and still underdeveloped in most parts of Africa. When RAS support comes to an end it is foreseen that the basin network with its regional members will take over the tasks.

2 Human Resources Development

2.1 Training

Most regions still lack a regional or national training strategy and impact indicators are often missing. Especially in Africa this is a recurrent problem – very seldom is there enough critical mass to support this kind of input. India has undertaken a big step in the right direction by seeking to formalise training inputs both on the supply and the demand side. This endeavour is supported by the SDC-financed Building Material Project.[1]

The training component will address training deficiencies in the low-cost building sector at all levels from architects and engineers right down to masons and construction workers. An in-depth study is currently being carried out by the Human Settlements Management Institute (hsmi), with joint funding by SDC and HUDCO, which will provide a state-of-the-art overview of the Indian appropriate building technology training sector. This study will not only assess current supply and demand for training, but also make recommendations and conduct a screening of existing training institutions, training systems, etc.

Several training courses in all regions covered by MEPI have been carried out focusing on different issues: technology, business management, marketing, etc. Special efforts to improve business management have led to several regional training courses being organised (see regional reports for details).

3 Technology

3.1 Innovations

Technological advances were made in the development of MCR technology in the area of accessory roof tiles. CVBT of Thailand has developed a new ridge tile system that is watertight, attractive and does not require plastering. A RAS Technical Bulletin (No. 12) was published in December 2000 by RAS/SKAT. This bulletin gives an overview of available solutions for special accessory roof tiles including ridge tiles, hip tiles and verge tiles. This is seen as an important addition to the normal MCR tiles, as they provide a complete solution for all roofing situations. These tiles can also be produced locally on standard tile vibrating tables using special moulds.

[1] The Building Material Project seeks to promote cost- and energy efficient building materials in five Indian states since 1998.

Several partners have made further advances in glazing of MCR tiles. Glazing tiles helps prevent black fungus and efflorescence (slat pigments) because it keeps water out of the tiles. Glazing can help prevent fungus for 6 years or more, depending on the level of air humidity. (Refer to RAS Technical Bulletin No. 10 for details).

Network partner Development Alternatives in New Delhi, India, is currently carrying out applied research to various aspects of tile performance, including low-cost glazing and painting of tiles.

3.2 Production Process

The all-important topic of quality control is still an issue. Keeping in mind that most of the producers are SMEs who have invested their own money and who are operating according to the very basic rules of supply and demand, it is difficult to enforce and implement an efficient quality control system. The Latin American Network has undertaken some promising steps to improve the production process and implement a strict quality control system.

Promoters and producers are addressing more and more environment- and energy-sensitive issues. This will eventually lead to technology improvements, not only with regard to economical, but also to ecological sustainability (e.g. solar curing as a promising system for hot and arid countries). MCR roofing also has definite environmental benefits in comparison with burnt clay tiles, asbestos roofing and others. Its energy ratio is considerably lower and a current research project is evaluating the project life cycle of MCR tiles.

Investment in MCR technology and improved training has boosted productivity in most regions. Latin America is a good example where productivity was at a low 100m^2 tiles per employee per year in 1990, whereas today it has risen to an average 650m^2 tiles per employee per year – this equals a 650% rise in productivity in just 10 years. Albeit a part of this labour productivity growth may be cyclical (during boom times firms tend to work their employees harder, producing a cyclical rise in productivity growth) most of this growth is structural. It may be worthwhile to take a closer look at workshops with higher productivity than others and examine what exactly makes them tick. Investing in state-of-the-art machines and good moulds can increase labour productivity either by increasing the amount of capital employed per worker or by speeding up total factor productivity (the efficiency with which both capital and labour are used).

3.3 Roof Structure

The year 2000 has seen the completion of the Roofing Atlas – a standard primer that provides basic information on all roofing design systems and materials. It summarises technical data and practical information from a wide range of publications, enabling readers from developing countries to identify solutions for almost any given roof construction problem, without having to study volumes of literature. Target groups are architects and engineers, producers and suppliers of building materials and above all, building practitioners medium- and small-scale developers in developing countries.

The main aim was to give an answer to the most frequently asked questions regarding roofing design and materials. The book is available through SKAT/IT bookshops and will also be made available on the Internet.

3.4 Equipment

The availability of locally produced equipment is ensured worldwide as before. The same thirteen equipment producers known for many years are selling their products with their different definition of quality standards. (Ref.: Annex 5 "Equipment producers selling locally, regionally or globally"). Problems here lie with effective distribution channels for the equipment – especially in Asian countries this seems to be a persistent problem.

3.5 Publications

A number of new publications were produced in 2000. Most of them are publicised through the information system of the basin network. Its homepage: http://www.gtz.de.basin was visited by over 80'000 visitors in 2000.

The local networks periodically produce various newsletters on MCR, offering a wide range of news, reports, hints and facts for daily. The basin Case Study Series, published by SKAT, is an ongoing collection on intelligent architecture and best practices of economical and energy-efficient building systems. It covers traditional and social aspects as well as the requirements of modern living. Three new issues were published in 2000 and the case study series now has 6 examples from Africa, Asia and Latin America.

Annex 6 shows a selection of the accredited journals, leaflets, guides, posters and manuals. All of them are available from RAS at the SKAT bookshop or directly from the publishers.

4 Recommendations

4.1 Technology

The year 2000 has seen good progress on high quality tiles/systems for ridge, hip, verge, and eaves. The two main issues that still need addressing are :

- the increase in productivity and output per table, especially in very competitive markets such as India, Latin America and Thailand/Philippines.
- the introduction of standardised quality control criteria and quality certificates such as in the Latin American network.

Higher productivity is still a critical issue for many workshops A number of entrepreneurs have succeeded in consistently raising productivity above the 800 m^2 per employee, per year mark.

Another important but often neglected issue is the holistic approach to construction and building as a *system* rather than individual building elements added together. This may be termed « intelligent buidling systems ». All to often, good quality tiles get a bad reputation because of poor architectural planning and shoddy workmanship. In future, the international networks such as **basin** must put more effort into promoting intelligent building solutions worldwide. After all, a good roofing product is only a small part of the equation.

Equipment
Attention should be given to distribution channels of quality equipment – especially in large countries such as India, as this is proving to be a disincentive to further technology dissemination.

Moulds for accessory roof tiles such as the ones discussed in RAS Technical Bulletin No. 12 must be made available to all countries currently producing MCR tiles. The main producers involved in mould production such as Parry & Associates, Development Alternatives, TEVI, etc. should incorporate these in their product programmes.

4.2 Promotion and Dissemination

Publications
MEPI collaborators and SMEs should make increased use of basin's easily accessible website: http://www.gtz.de/basin. It contains a rich source of information on know-how resources, documentation and equipment. Technical briefs, news, booklets, etc. produced by RAS/MEPI network partners can be published via RAS free of cost. More regional specific information is also available at EcoSur's website: http://www.ecosur.org by utilising such modern electronic facilities, a wider audience can be reached as inter-connectivity continues unabated.

Based on positive feedback from various partners and individuals, RAS will continue to publish the Case Study Series documenting best practices in cost- and energy-efficient housing, health, and education facilities. Regional and national centres are encouraged to contribute to these publications as they can be utilised as effective PR tools on an international level. The basin Network acts as Resource Pool of speakers and administrators.

4.3 Human Resources Development

Building up capacity in all relevant areas of MCR production, marketing and distribution was at the forefront of RAS activities in the past year. Numerous regional and national workshops have been held to fine-tune skills and impart better approaches in marketing and business management. International seminars of the basin network are held yearly, last years was held in New Delhi in collaboration with HUDCO India.

The conference in 2001 is planned for September 2001 in Santa Clara, Cuba with the central theme of "Ecomaterials for Disaster Prevention and Relief". This conference is being jointly organised by ECOSUR and CIDEM (Centre for the Research and Development of Structures and Materials).

5 Specific RAS related subjects

5.1 Creating Synergies between Business and Development

Representatives of the Swiss private sector in collaboration with SDC and SKAT are currently carrying out an action research project for mass dissemination of building materials through partnerships between small and large-scale enterprises. This on-going project is based on the assumption that a number of suitable, affordable, locally produced building materials such as MCR have a potential for a break-through in the market. It is assumed that the co-operation between cement manufacturing companies and the MCR micro-enterprise approach can create essential synergies for both sides (win-win situation). The action research is focusing on South Africa, Sri Lanka and Mexico.

Networking, both at regional and international levels are key to improving standards and product quality. Networking can focus research and training efforts on small and medium level local workshop production and construction processes and help develop appropriate scaled-down technologies for local markets.

5.2 Plan of Operation

For MCR related activities planned for the year 2000 such as publications, missions, meetings, seminars, training's, etc please refer to annex 5.

5.3 Knowledge Sharing Project

Early 2001 SDC has contracted the consortium SKAT/Swisscontact to conduct a Market study *on "Knowledge sharing and cost-effective building materials".* The overall goal of the activities covered by the project is described as:

"Cost-effective building materials are prepared for large scale dissemination, that means the markets are known and defined, the right replication tools and strategies are known, and inter-action between clients from the main markets and old and new service providers has started."

The Project should be completed by December 2002. The project contains 6 components. It is planned that basin as a network (or individual basin partners) will be involved in some of these project components, in particular:

- organising a seminar
- assisting in the elaboration of selected service packages for which there is a proven demand.

This action research project analyses economical and market issues first and foremost. A systematic market study has never been done to know who the clients are, what their needs are and what service packages would be adequate to help them in their decisions. There were also little efforts to place and position the technology in the "mainstream markets". Where is this mainstream market and who takes decisions and when? Who decides when on the technology choice? Are these people informed and do they really have a real choice?

These questions will be analysed and hopefully provide some conclusive answers. There are several important target groups or decisions makers who are in need of cost-effective building materials but their needs have not been converted into a

demand for services, partly also because the service packages do not exist tailored to their needs.

In order to get the key stakeholders together (clients and providers), it is proposed to organise a basin workshop in Switzerland in June 2002 (similar to the basin seminar that has taken place in India in November 1999). The workshop will get the key providers and the main stakeholders together. At the same time, the workshop will provide a platform to show what basin and its partners have been supporting in housing and cost-effective building materials.

5.4 Phasing-out of RAS support

SDC has invested considerable amounts and efforts in the development and dissemination of cost-effective building materials in the last 10 to 15 years (micro-concrete roofing tiles, burnt clay bricks and earth blocks, etc.). These efforts have been well co-ordinated with other agencies such as ILO and UNCHS and the basin network and have tried to create synergy effects with other stakeholders. Today, there are somewhere between 2'000 to 3'000 MCR-tiles workshops operating in the whole world. Initial support in the 1990s has launched a movement that today spans almost all continents and over 50 countries in the developing world. Predictably, some areas have taken off more than others have and some networks provide more support than others do. SDC/RAS funding will come to a close by the end of 2001. Thus, this report has taken a closer look at what has been achieved since.

Looking forward, it is felt that additional targeted support beyond 2001 will give added value to support the regional networks and the wider dissemination to other countries. Specifically, the four areas focusing on information dissemination as outlined below should be considered:

a) The **question and answer service** provided by basin partners (Q+A) which gives newcomers and upstarts the possibility to tackle individual and very specific problems pertaining to their operations at a very low cost.

b) Sector specific newsletters such as the **basin News** magazine which provide state-of-the-art information on all questions regarding cost-effective building materials and construction to an international audience;

c) the **basin homepage** which allows networking and information exchange on an international level, and

d) **basin international networking**, which will ensure the linking-up of different regional operators on a yearly basis. These meetings/seminars enable face-to-face exchange and insights into different solutions and way of overcoming problems.

III ANALYSIS BY REGIONS

1 Latin American Network

BOLIVIA COLOMBIA COSTA RICA CUBA ECUADOR EL SALVADOR GUATEMALA GUYANA HONDURAS MEXICO NICARAGUA PANAMA PERU DOM. REP. HAITI

There is again a marked improvement in productivity in most workshops of the region. Overall, quality is improving and some countries are experiencing very good sales. Two salient features need to be mentioned: the continued efforts in improving productivity and eliminating bad performers who deliver sub-standard products, and the successful introduction of MCR for post-disaster reconstruction projects (Hurricane Mitch in Central America, earthquake reconstruction in Colombia, Resettlement Projects in Peru). The Latin American Network is still the most dynamic region for the MCR industry. The picture is uneven though, with some countries reporting slow progress while others picking up quickly.

Peru is an example for a good performer. Micro-concrete technology was introduced to Peru 11 years ago through an SDC-funded programme as a cheap, durable alternative to traditional clay roofing. Today, Peru has 52 workshops that are operating with over 500 persons employed, producing about 250'000 square metres of tiles yearly. External funding by SDC ended in 1998 and today all 52 workshops run on a profitable basis with profit margins in the range of 15 – 20%[2]. After successfully entering the market, workshop owners often diversify into other construction materials, such as bricks and flooring, using the same micro-concrete technology.

This success has been enabled by the large scale reconstruction process in the Ayacucho region beginning in the mid-1990s, which has built over 13'000 houses and around 100 schools and churches in almost 400 villages in areas previously affected by insecurity and terrorism. Several international donors and the Peruvian government actively promoted the use of MCR technology as a cheap and appropriate alternative to galvanised iron sheets and clay tiles. Today, MCR is widely seen as a durable and viable option for roofing solutions.

Achievements

- The most dynamic countries are Ecuador and Cuba – despite the economic crisis both countries are witnessing. Which proves that MCR provides a low-cost, home grown solution for countries that can no longer import expensive roofing materials such as CGI sheets.
- MCR as a viable roofing material has now been firmly established in three countries in the Region: Cuba, Honduras and Peru with Cuba leading the way with 375 workshops operating.
- The value of MCR sold in the region is estimated at 8 million US$ in the year 2000.
- Both in Honduras and El Salvador, the tiles have established themselves and are widely used in the post-Mitch reconstruction phase.
- 21 training courses are reported with over 300 participants in the region.

[2] see Business Week article in annex "Fixing the World, one Roof at a Time".

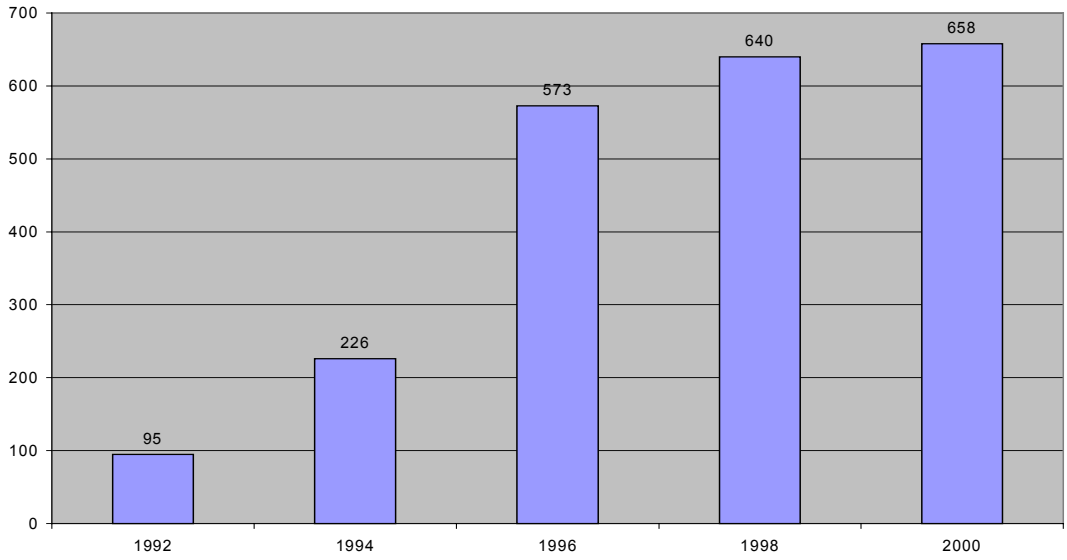
Shortcomings

- Slow progress is reported from Panama, Dom. Rep. and Haiti, where productivity and output are still quite low compared to other countries in the region.
- Consolidation of Cuban MCR activities: 32 workshops in Cuba were closed down because they were using substandard equipment and were producing bad tiles. This is an important step to ensure MCR's long term quality standards.

Trends

- EcoSur has developed a quality certificate, which evaluates individual workshops and their products. A catalogue of 40 questions classifies the workshop into different categories. Workshops that produce good quality tiles and have a reasonable presentation, will receive a "Quality Certificate", if they reach excellent quality they receive a "Best Practice" certificate.
- Productivity is up where MCR must compete in a well-developed market environment. Honduras is a good example where 2000's output reached 815 m^2 per employee and year as compared to Nicaragua with 517 m^2.

Figure 2: The Latin American Network at a glance - Workshops operating



2 Asian Network

CAMBODIA LAOS PHILIPPINES THAILAND

The Asian region has slowly started to recover from the economic crisis that hit the region in 1997. The construction industry is still in a slump, especially in Thailand and the Philippines where there is an oversupply of office space and housing from the boom of the early '90s. Accordingly, this has led to stagnation (Philippines) or even a slump in MCR development (Thailand). Laos and Cambodia are still newcomers with a very nascent MCR industry (less than 10 workshops operating in both countries). Tile quality in the region is quite good although there are still deficiencies regarding overall quality control. Especially in the poorer countries with less developed markets and no or little competition, quality control is not done or done only sporadically. Further development of the Asian network and the overall promotion of tiles are dependent upon CVBTC.

Laos

Laos has seen continued progress over the past year, but there are still the same bottlenecks as ever. The following points need mentioning poor local equipment from Thailand, lack of quality standards and quality control and the lack of entrepreneurial spirit in much of the country (producers are very secretive about their operations). The main market are national and international NGOs who like to use MCR for social infrastructure (schools, clinics et al) because it creates employment for villagers. There is currently no association or network of MCR producers in Laos. No training or seminars/workshops held in 2000. No training aids or marketing material in Lao language exist, but these are planned for in 2001. As of yet, there is no national organisation that is able to demonstrate the capacity to be a National Centre for Laos.

Cambodia

MCR was introduced to Cambodia in 1995. The technology has since been well accepted with several NGOs actively promoting the technology. Two technical training courses were held in 2000 but there are still no Khmer language support or training aids available. Tile quality overall is good. Since Cambodia has a tradition of using square clay tiles, adaptation of MCR has been smooth. The clay tiles use a double roof structure (2 alternating layers of rafters and battens) which enables MCR to save tremendously on wood consumption. Because of the scarcity of timber, it is safe to say that MCR has hope of commercial success in Cambodia especially when competing with clay tiles.

Like in Laos, marketing is still deficient and there are no marketing materials available in English or Khmer. There are several small informal producers and a government vocational college with 2 sets of equipment. Both Laos and Cambodia are still nascent markets with less than 10 workshops operating in each country.

Philippines

Progress continues in the advancement of MCR in the Philippines despite the difficult economic environment. To date more than 6 million MCR tiles in about 10 years of MCR experience have been produced. MCR roofing solutions are now not only recognized among low-cost housing projects but also with high-end buildings which improves the high-profile image of MCR in the country. Still, GI sheets are the most popular roofing materials in the Philippines, selling at a lower price than MCR roofing. The Philippine network is quite active, uniting producers, national in-

stitutions and universities. The official membership of the Pagtambayayong Foundation Inc. to the **basin** network is recognition of the efforts exerted on the promotion and development of building technologies in the country.

Thailand

The MCR industry in Thailand is still alive although quiet. Tile quality on the whole is OK. Tiles are produced only by NGOs, as private businesses are not interested. The competition with industrially produced roof tiles is very stiff. Thailand's good infrastructure and well-developed industrial sector allows easy access to high quality tiles and asbestos/cement panels. Also, Consumers have very high expectations. Roofing tiles and a/c sheets are advertised on national television. Accessory tiles are needed for MCR to compete in Thailand.

NGOs have expressed an interest in the technology for use by CBOs (community based organizations) and are willing to pay for training. One village group was trained in MCR production and continued to find orders and produce on their own. Another village group purchased equipment but needs training before they can use it. A social housing NGO has equipment and needs training and support. One NGO with a large national network of ICEB (Interlocking Compressed Earth Block) producers wants to promote MCR. Funding for large dissemination projects in Thailand is not warranted.

Achievements

- Effective technology documentation with corresponding effective transfer through guidelines, manuals and newsletters has been useful for promotion
- A contractor development programme has been carried out in Cebu City to improve business management skills of Filipino entrepreneurs.

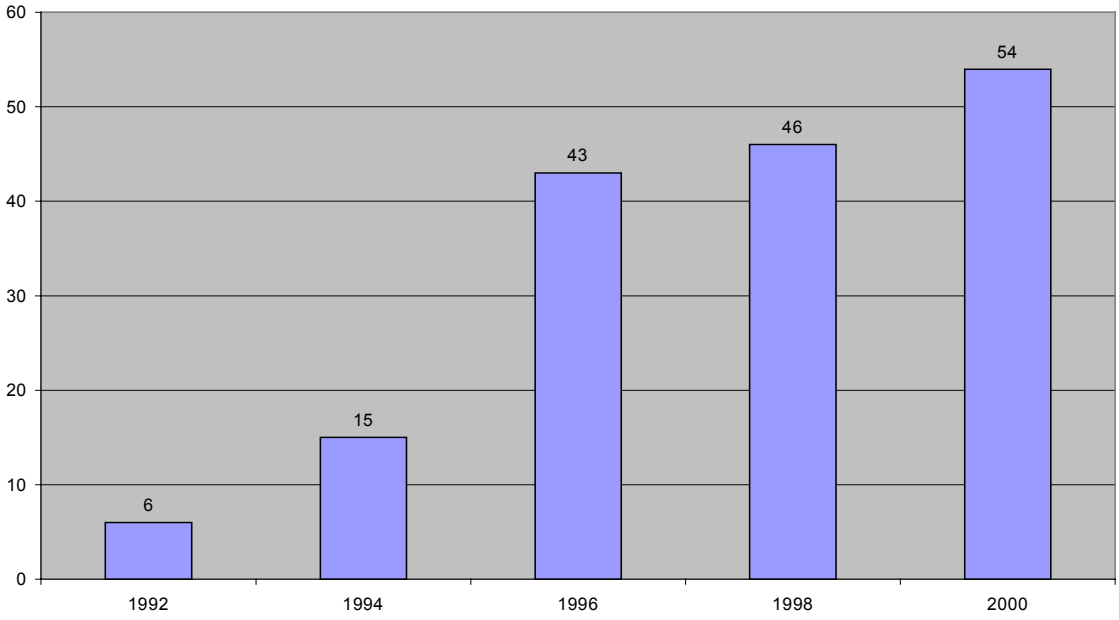
Shortcomings

- DomTec (subsidiary of HABITECH/AIT) is the only local equipment supplier for the Mekong region with some faults – motor failures and poor quality moulds are reported throughout this region, equipment improvement is paramount if MCR is to succeed in the region. (Philippines has own equipment production).

Trends

- Economic recovery beyond 2000 should see an increase in MCR production in the region. There is a major threat in rising cement prices – which makes MCR more costly than ordinary corrugated GI sheets.
- MCR workshops are still forced to diversify and add other products to survive. In most countries MCR is not able to support a workshop without further product diversification.
- The small number of operating workshops in Laos (4) and Cambodia (5) do not warrant national associations or national centres – at present only the Philippines has the market penetration and level of organisation to allow regular training courses or national housing technology forums. Organisation or networking on a regional scale may be a viable option (language problems!).
- The vibrant Philippines environment has enabled national and international networking and the organisation of several national workshops.

Figure 3: The Asian Network - Workshops operating



3 Indian Network

Micro Concrete Roofing Technology has made great progress in the reporting period. Around 270 entrepreneurs are now producing MCR tiles nation-wide, providing reliable roofs for clients and sustainable livelihoods for the entrepreneurs. This is due to the fact that thatch and baked clay tiles are the most common roofing options but the quality of these roofs are very poor. Factory made clay tiles have become very expensive recently due to fuel, labour, raw materials and transportation problems. This technology is very energy intensive and uses valuable topsoil. CGI sheets are cheap but they provide less than satisfactory roofing for residential purposes. Thus MCR has been able to create itself a new market niche in various markets across India.

Local product promoters have been engaged and much greater emphasis is being given to the strengthening of brands and roofing services. Enterprise multiplication has strengthened in the reporting period with a total of 111 new units since 1998. The various donor inputs supported by SDC (e.g. Building Materials Project) have indeed created synergies among national institutions and NGOs that are now beginning to show positive results. The SDC-funded project was launched in 1996 and will continue until early 2002.

Achievements

- A doubling of production in the last two years (from 666'000 square meters to 1'423'000 of tiles produced, + 750'000 square meters produced since 1998.)
- MCR is becoming a well placed alternative usurping the shift in user preference towards cement products (away from burnt clay tiles and thatch in rural and peri-urban markets)
- The SDC-funded Building Materials Project (BMP) India is one of the driving factors behind the current success in adopting MCR technology in India. Its main aim is to develop mass marketing strategies for sustainable building materials and technologies and to enhance the efficiency of small-scale enterprises that produce and market sustainable building materials. By working in cooperation with national and regional NGOs, the BMP has been able to penetrate both local and regional markets and increase visibility and marketability of building materials hitherto unknown in India.

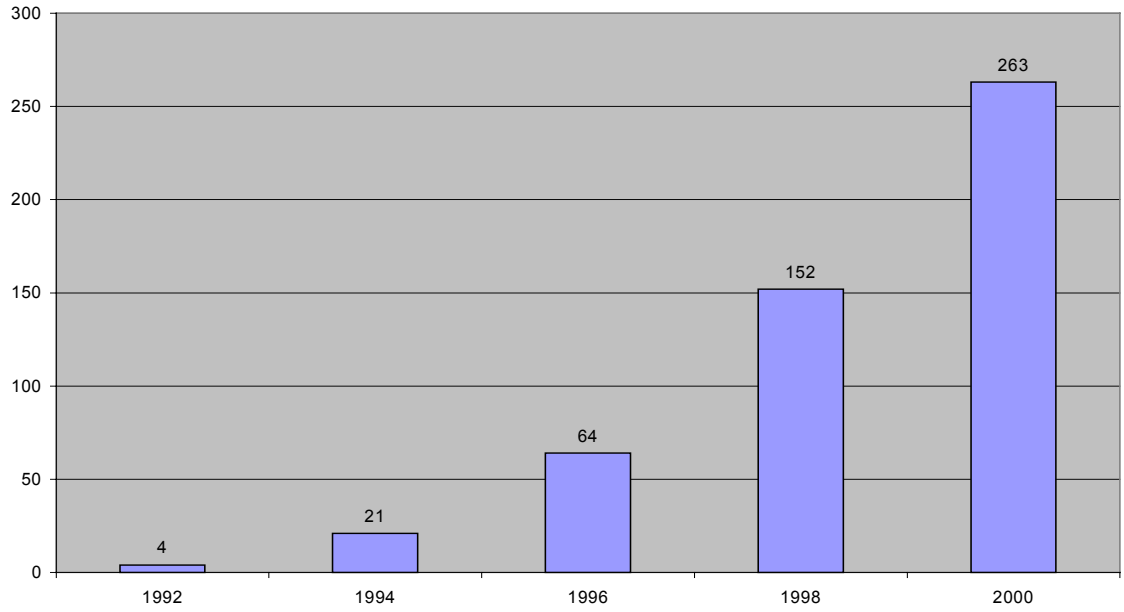
Shortcomings

- An effective distribution channel for TARA equipment & other equipment is still not on the horizon.
- A unified training approach including technical, business management and marketing aspects still does not exist and, if not addressed, could become a major bottleneck for future expansion of the technology in India.
- Many new market entries do not implement strict quality control, resulting in poor quality MCR tiles.

Trends

- MCR has been able to penetrate pockets in urban and semi-urban areas and position itself as an alternative for both middle-class and lower-class housing segments.
- Development Alternatives (DA) is a national NGO seeking to create an impact in housing, job creation and poverty alleviation. To this end it is working together with numerous self help groups who are ready to absorb inputs to improve livelihoods of the poor. MCR and CEB are seen as two promising technologies to achieve this goal.
- Productivity has generally improved with workshops producing more tiles per day per worker
- Training is now considered a major issue and has been taken up by a number of actors (donors, HUDCO, universities, et al.). The before mentioned Building Materials Project is also addressing training deficiencies regarding product quality, business management and marketing in the sustainable building materials sector. An exhaustive survey identifying all actors involved in training in India has been completed and will lead to eventual recommendations and a training action plan which will also encompass training for MCR.

Figure 4: The Indian Network at a glance - Workshops Operating



Enterprise multiplication has strengthened in the reporting period with a total of 111 new units and over 400 new jobs created since 1998.

4 West African Network

BENIN BURKINA FASO GHANA IVORY COAST

The situation for MCR in West Africa is mixed; whereas Ghana and Ivory Coast have recorded a steady progression in market access in the past few years, the situation is less dynamic in Burkina and Benin. Ghana has seen a real take-off with 75 new workshops established in the past two years. Production and sales in Burkina and Benin is largely confined to the largest cities of Ouagadougou and Cotonou, workshops outside of these agglomerations operate only on a part time basis or must offer product diversification. In the poorer countries of the region, MCR is clearly targeting the middle- and upper income market segments and most clients are government, para-statal or churches. This is partly due to very high timber prices in the Sahel region, which is a real disincentive for wider dissemination

In Benin, an estimated 10 workshops are still operating today, confined to the cities of Cotonou and Porto Novo. Lack of technology know-how (due to the lack of training) and poor marketing has hampered growth of the sector. Market segments are the middle- and high income brackets not the poorer segments of society. The few workshops existing in Benin does not warrant network activities. Currently, MCR tiles are not officially certified in Benin, which makes it difficult to access public and semi-public markets (schools, clinics, offices, etc.)

Achievements

- More than doubling of production in Ghana in the past two years, Ghana also features the highest productivity rate in Africa thanks to industrialisation of production in Accra. (Since many workshops in Ghana produce extruded and vibrated tiles, both types are included in the MEPI statistic.)
- Efforts underway for approving building standards for MCR in Burkina in co-operation with the National Certification Commission.

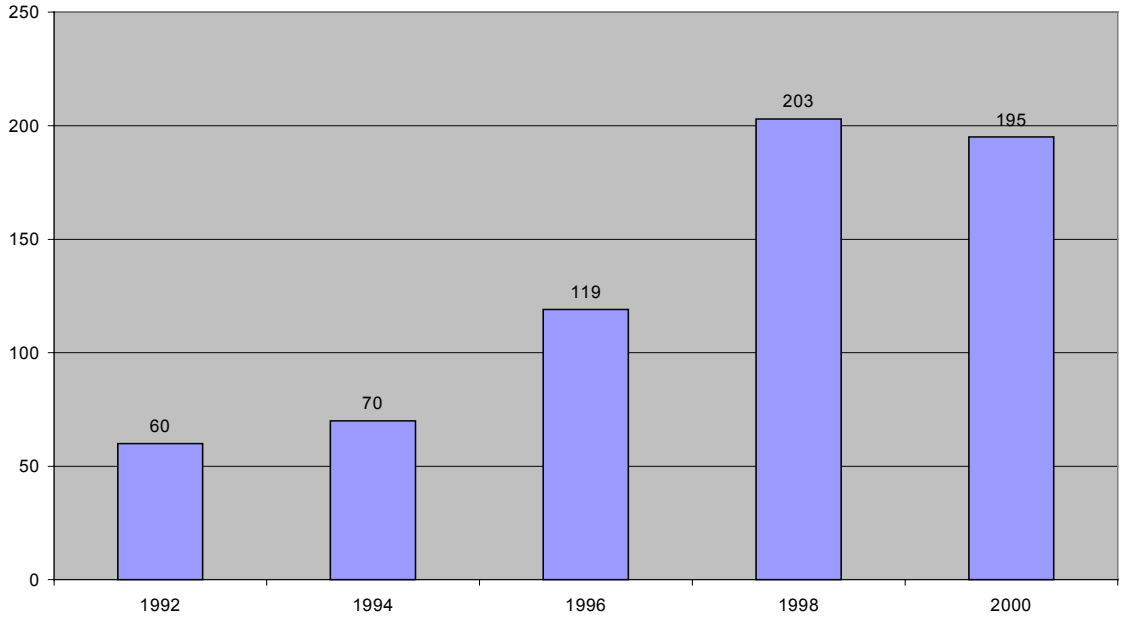
Shortcomings

- Low to very low productivity in most West African countries (except for Ghana), due to poor production/management structures and only part-time operation of many workshops.
- Due to low productivity and high tile production costs, MCR has not been able to position itself as a cheaper alternative to CGI in the Sahel region.

Trends

- Generally it can be said that except for Ghana and Ivory Coast, the MCR market in this region is still too dependent on government and the aid agency/NGO sector. Not enough efforts are going into promotion and dissemination to access the private sector.
- There is a reluctance to organise networks of MCR producers due to competition reasons.
- Fewer employees are producing more tiles (although this may be distorted by industrial extruder-based production in Ghana).

Figure 5: The West African Network at a glance - Workshops Operating

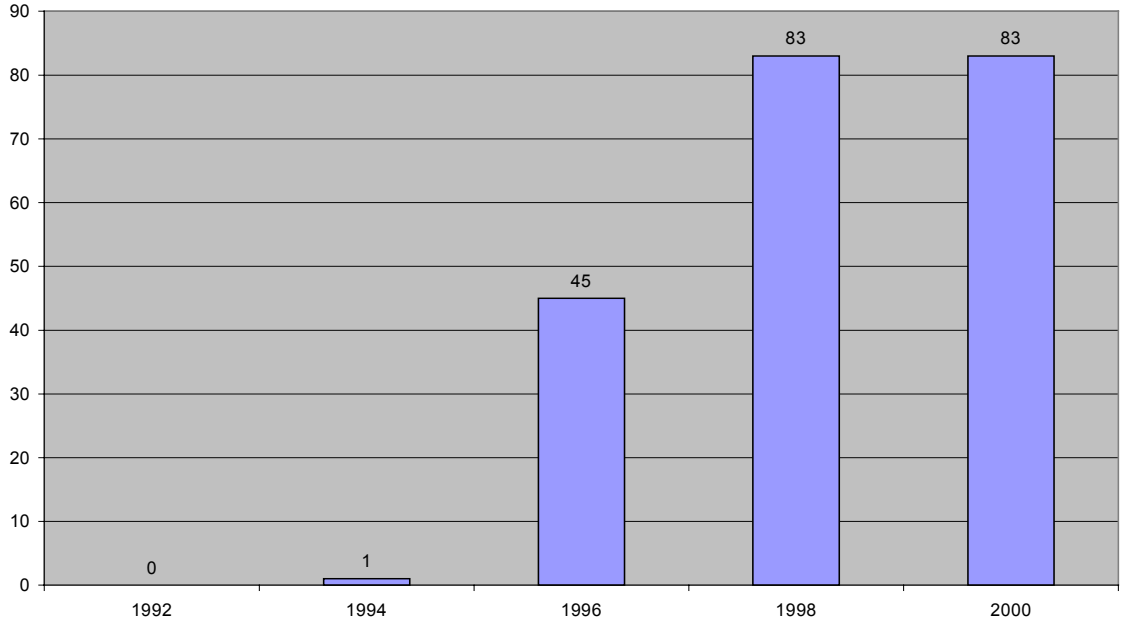


5 East African Network

KENYA MADAGASCAR TANZANIA UGANDA

No MEPI report has been handed in for the East African region, only few statistical figures are available. This is the only RAS region where MEPI has not been operational the past two years. Thus the numbers reported below are estimates based on past monitoring and experience.

Figure 6: The East African Network at a glance - Workshops Operating



6 The Southern African Network

No MEPI report has been handed in for the South African region, only statistical figures are available. The same number of workshops is operating (4) since a number of years.

IV STATISTICS

	summary of data (2000)												findings				
	Production / (a x m² (x 10'000))	Workshop operating	Tables operating	Moulds operating	Personnel employed	Total m² production (x10'000) **1)**	SDC financed exp. ('1000 US$)	Autofinanced exp. ('1000 US$)	Donor finan. exp. ('1000 US$)	Selling price per m² (US$)	Selling price m² GI (US$)	Tot. investment per job (US$)	Tot. investment per m² tiles (US$)	A Tables / workshop	B Personnel / table	C m² MCR production / job **2)**	D GI / MCR	E m² MCR production/workshop*a
Bolivia	0.80	3	4	600	11	2.1	4.0	0.0	0	3.0	4.0	5.4	2.8	1.3	2.8	727	1.3	2667
Colombia	5.6	9	17	4800	58	19.8	0.0	49.0	0	4.5	5.0	3.1	0.9	1.9	3.4	966	1.1	6222
Costa Rica	3.4	7	14	3400	35	16.5	0.0	2.0	0	4.5	4.0	2.7	0.7	2.0	2.5	971	0.9	4857
Cuba	102.9	375	427	111576	1760	653.7	13.0	85.0	0	2.8		2.2	0.6	1.1	4.1	585		2744
Ecuador	10.2	21	28	7700	117	47.7	5.0	18.0	0	2.5	2.7	3.2	0.8	1.3	4.2	872	1.1	4857
El Salvador	18.5	13	37	13800	160	121.4	2.0	2.0	0	3.0	3.0	2.1	0.3	2.8	4.3	1156	1.0	14231
Guatemala	9.5	14	21	5400	74	62.5	3.5	7.0	0	2.9	3.5	3.4	0.0	1.5	3.5	1284	1.2	6786
Guyana	0.3	1	1	200	4	1.4	0.0	0.0	0	3.5	4.0	1.7	0.5	1.0	4.0	750	1.1	3000
Honduras	78.5	132	218	43050	963	616.9	5.5	49.0	0	2.8	3.0	1.8	0.3	1.7	4.4	815	1.1	5947
Mexico	0.9	5	5	1200	16	2.5	0.0	9.0	0	3.6	3.6	2.7	1.8	1.0	3.2	563	1.0	1800
Nicaragua	3.1	14	22	4400	60	31.9	0.0	32.0	0	3.1	4.0	5.5	1.1	1.6	2.7	517	1.3	2214
Panama	0.7	6	9	1800	30	3.2	2.0	17.0	0	3.5	3.6	3.5	3.3	1.5	3.3	233	1.0	1167
Peru	17.0	52	80	26100	503	117.5	0.0	0.0	0	4.0	4.7	2.5	1.3	1.5	6.3	338	1.2	3269
Dom. Rep.	0.4	4	4	700	12	9.6	0.0	8.0	0	3.3	3.3	9.3	1.2	1.0	3.0	333	1.0	1000
Haiti	0.8	2	3	600	10	4.1	0.0	0.0	0	3.5	3.5	3.5	1.1	1.5	3.3	800	1.0	4000
Philippines	4.6	34	68	15200	166	47.8	8.2	5.1	0	3.5	2.5	4.1	0.7	2.0	2.4	277	0.7	1353
Thailand	0.1	2	3	744	6	2.6	0.5	0.2	0.7	2.1	1.7	20.0	6.1	1.5	2.0	83	0.8	250
Laos	0.7	4	8	1913	14	0.9	1.0	5.2	0	2.2	1.3	2.6	3.2	2.0	1.8	500	0.6	1750
Sri Lanka **3)**		1	2	200										2.0				
Bangladesh **3)**		5	60	12000	240									12.0	4.0			
Cambodia	0.2	5	9	1630	29	0.7	0.5	3.4	0.5	2.3	1.7	0.9	3.0	1.8	3.2	69	0.7	400
Tadjikistan **3)**	3.9	3	13	3500	180	12.0								4.3	13.8	217		13000
India	53.1	263	306	45490	1681	142.3	104.4	115.4	6.5	1.9	3.0	0.7	1.0	1.2	5.5	32	1.6	2019
Tanzania **3)**	0.4	11	17	2030	24	1.3	0.0	0.0	0	5.7	4.3	0.5	1.4	1.5	1.4	167	0.8	364
Madagascar **3)**		1	2	200	0													
Kenya **3)**	0.7	33	65	26021	232	6.1	0.0	0.0	0	4.9	2.8	0.3	1.4	2.0	3.6	30	0.6	212
Uganda **3)**	0.4	38	307	28740	572	4.9	0.0	0.0	0	4.9	3.2	0.4	5.8	8.1	1.9	7	0.7	105
Benin	5.0	10	15	4000	80	1.7	0.0	10.5	8.0	4.5	3.6	1.4	11.2	1.5	5.3	625	0.8	5000
Ghana **3)**	38.4	145	299	39000	580	230.6	0.0	0.0	0.0	5.7	3.4	1.5		2.1	1.9	662	0.6	2648
Burkina Faso **3)**	3.2	15	23	5400	112	10.0	0.6	17.5	8.0	4.6	6.5		2.7	1.5	4.9	286	1.4	2133
Ivory Coast **3)**		25	43	5000	150	33.1	0.0	0.0	0.0					1.7	3.5			
Namibia **3)**	0.1	3	5	1000	25	1.3	0	0.5	0.0	4.2	5.5	2.7	5.6	1.7	5.0	40	1.3	333
Mocambique **3)**	0.4	1	2	350	7	1.4	0	0.0	0.0			4.0	2.9	2.0	3.5	571		4000
Total / *average*	364	1257	2137	413744	7911	2207.5	150.2	435.8	23.7	3.6	3.5	3.4	2.3	2.2	3.8	499.2	1.0	3391

Legend:

Info:

1) Accumulated overall production 1989 - 2000
2) Production per year / N° of personnel employed
3) MEPI data not or only partially received in 2000

° Since 1995 independentely established producers are included in the statistics in India, Thailand, the Philippines, and Latin America

1.1 Workshops operating

	Latin America																Asia without India								India		East Africa					West Africa					South. Africa			
	Bolivia	Colombia	Costa Rica	Cuba	Ecuador	El Salvador	Guatemala	Guyana 1)	Honduras	Mexico	Nicaragua	Panama	Peru	Dom. Rep.	Haiti	**Total Latin America**	Philippines	Thailand	Laos	Sri Lanka 2)	Bangladesh 2)	Cambodia	Tadjikistan 2)	**Total Asia**	India	**Total India**	Tanzania 2)	Madagascar 2)	Kenya 2)	Uganda 1)	**Total East-Africa**	Benin	Ghana 1)	Burkina Faso 2)	Ivory Coast 2)	**Total West-Africa**	Namibia 1)	Mozanbique 1)	**Total Southern Africa**	**Global**
2000	3	9	7	375	21	13	14	1	132	5	14	6	52	4	2	**658**	34	2	4	1	5	5	3	**54**	263	**263**	11	1	33	38	**83**	10	145	15	25	**195**	3	1	**4**	**1257**
1999	3	7	7	390	19	13	13	1	129	4	12	4	52	3	2	**659**	34	3	4	1	5	5	3	**55**	204	**204**	11	1	33	38	**83**	21	145	15	25	**206**	3	1	**4**	**1211**
1998	5	4	7	381	17	13	13	1	120	3	12	7	52	3	2	**640**	33	2	2	1	5		3	**46**	152	**152**	11	1	33	38	**83**	21	145	12	25	**203**	3	1	**4**	**1128**
1997	4	3	5	369	18	13	12	1	118	2	12	6	40	5	1	**609**	31	8		1	5		3	**48**	102	**102**	9	1	24	29	**63**	16	70	8	25	**119**	3	1	**4**	**945**
1996	2	3	5	359	14	13	12	1	114	2	12	3	28	5	1	**573**	27	8		0	5		3	**43**	64	**64**	7	0	16	22	**45**	16	70	8	25	**119**	3	1	**4**	**848**
1995		3	4	167	16	12	10	1	110		8	2	22	4	1	**359**	17	5		0	0		3	**25**	43	**43**	3	0	7	11	**21**		60	6	17	**83**				**531**
1994		2	4	56	9	16	6		101		8	2	17	5	1	**226**	10	5		0	0			**15**	21	**21**	0	0					48	5	17	**70**				**332**
1993		2	2	32	3	9	5		86		7	1	11	5	1	**163**	7	3		0	0			**10**	9	**9**	1	0					44	4	17	**65**				**247**
1992		1		2	2	3	4		63		6		6	8	1	**95**	5	1		0	0			**6**	4	**4**		0					35	4	21	**60**				**165**
1991		1		1		2	4		28		6		4	8	1	**54**	2			1	1			**4**	1	**1**		0					27	3	16	**46**				**105**
1990							4		14		9		2	5	1	**34**												1					15	1	15	**31**				**65**
1989									3		8		2	3		**16**																	8		12	**20**				**36**
2000	**3**	**9**	**7**	**375**	**21**	**13**	**14**	**1**	**132**	**5**	**14**	**6**	**52**	**4**	**2**	**658**	**34**	**2**	**4**	**1**	**5**	**5**	**3**	**54**	**263**	**263**	**11**	**1**	**33**	**38**	**83**	**10**	**145**	**15**	**25**	**195**	**3**	**1**	**4**	**1257**
Global Figures Covered by the MEPI System																																							

Legend:

1) no data available; assumption

2) Countries with ongoing activities, but not supervised in 2000

Info:

° Cuba is globally the most advanced country. But after an enormous growth rate in 1996, stagnating since 1997 (consolidation phase)
° India reports a growth rate of 29%
° Overall increase of 4% at global level

1.2 Tables operating

	Latin America																Asia without India									India		East Africa					West Africa					South. Africa			
	Bolivia	Colombia	Costa Rica	Cuba	Ecuador	El Salvador	Guatemala	Guyana 1)	Honduras	Mexico	Nicaragua	Panama	Peru	Dom. Rep.	Haiti	**Total Latin America**	Philippines	Thailand	Laos	Sri Lanka 2)	Bangladesh 2)	Cambodia	Tadjikistan 2)	**Total Asia**	India	**Total India**	Tanzania 2)	Madagascar 2)	Kenya 2)	Uganda 2)	**Total East Africa**	Benin	Ghana 2)	Burkina Faso 2)	Ivory Coast 2)	**Total West Africa**	Namibia	Mozambique 1)	**Total Southern Africa**	**Global**
2000	4	17	14	427	28	37	21	1	218	5	22	9	80	4	3	**890**	68	3	8	2	60	9	13	**163**	306	**306**	17	2	65	307	**391**	15	299	23	43	**380**	5	2	**7**	**2137**
1999	4	12	14	442	26	37	20	1	213	4	17	7	80	3	3	**883**	67	5	8	2	60	8	13	**163**	229	**229**	17	2	65	307	**391**	22	299	23	43	**387**	5	2	**7**	**2060**
1998	6	8	14	433	24	39	20	1	204	3	17	9	80	3	3	**864**	65	3	4	2	60		13	**147**	171	**171**	17	2	65	307	**391**	22	299	20	43	**384**	5	2	**7**	**1964**
1997	4	7	12	419	20	39	19	1	200	2	17	7	74	5	1	**827**	59	10		2	60		15	**146**	120	**120**	15	2	48	279	**344**	16	120	14	43	**193**	5	2	**7**	**1637**
1996	2	7	12	409	18	39	19	1	196	2	17	4	61	5	1	**793**	55	10			60		15	**140**	74	**74**	13		32	176	**221**	16	120	14	43	**193**	4	2	**6**	**1427**
1995		3	10	184	20	33	13	1	192		15	2	43	4	1	**520**	30	7					15	**52**	48	**48**	8		15	68	**91**		110	12	35	**157**				**868**
1994		2	12	73	16	37	12		200		15	2	27	5	1	**401**	13	7					5	**25**	24	**24**							59	7	35	**101**				**551**
1993		2	6	37	4	16	7		155		14	1	17	6	1	**265**	8	4						**12**	10	**10**							55	6	32	**93**				**380**
1992		1		2	3	3	6		105		15		12	10	1	**157**	5	1						**6**	4	**4**							45	6	31	**82**				**249**
1991		1		1		2	4		45		15		7	10	1	**85**	2							**2**	1	**1**							36	4	26	**66**				**154**
1990							4		23		23		4	5	1	**59**																	22	2	21	**45**				**104**
1989									3		20		4	3		**30**																	13		12	**25**				**55**
2000	**4**	**17**	**14**	**427**	**28**	**37**	**21**	**1**	**218**	**5**	**22**	**9**	**80**	**4**	**3**	**890**	**68**	**3**	**8**	**2**	**60**	**9**	**13**	**163**	**306**	**306**	**17**	**2**	**65**	**307**	**391**	**15**	**299**	**23**	**43**	**380**	**5**	**2**	**7**	
Global Figures Covered by the MEPI System																																								**2137**

Legend:

1) no data available; assumption

2) Countries with ongoing activities, but not supervised in 2000

Info:

° Table producers : Annex 5
° India with about 33% increase
° Overall increase of 4% at global level

1.3 Moulds Operating

	Latin America																Asia without India								India		East Africa					West Africa					South. Africa			
	Bolivia	Colombia	Costa Rica	Cuba	Ecuador	El Salvador	Guatemala	Guyana 1)	Honduras	Mexico	Nicaragua	Panama	Peru	Dom. Rep.	Haiti	**Total Latin America**	Philippines	Thailand	Laos	Sri Lanka **1)**	Bangladesh **1)**	Cambodia	Tadjikistan 1)	**Total Asia**	India	**Total India**	Tanzania 1)	Madagascar 1)	Kenya **1)**	Uganda 1)	**Total East Africa**	Benin	Ghana 1)	Burkina Faso 1)	Ivory Coast **1)**	**Total West Africa**	Namibia	Mozambique 1)	**Total Southern Africa**	**Global**
2000	600	4800	3400	111576	7700	13800	5400	200	43050	1200	4400	1800	28100	700	600	**227326**	15200	744	1913	200	12000	1630	3500	**35187**	45490	**45490**	2030	200	26021	28740	**56991**	4000	33000	5400	5000	**47400**	1000	350	**1350**	**413744**
1999	600	3600	3400	114076	7300	13800	5100	200	42050	1000	3200	1400	28100	500	600	**224926**	15100	904	1513	200	12000	1430	3500	**34647**	35685	**35685**	2030	200	26021	28740	**56991**	4200	33000	5400	5000	**47600**	1000	350	**1350**	**401199**
1998	1000	3200	3400	112276	6900	14200	5100	200	39750	800	3200	1600	28100	500	600	**220826**	14700	480	800	200	12000		3500	**31680**	27745	**27745**	2030	200	26021	28740	**56991**	4700	33000	3500	5000	**46200**	1000	350	**1350**	**384792**
1997	800	3200	2800	109476	6100	14200	4900	200	38650	600	3200	1200	25100	1100	200	**211726**	14300	2000		200	12000		3000	**31500**	19885	**19885**	1530	200	19464	20910	**42104**	3200	33000	3430	5000	**44630**	1000	350	**1350**	**351195**
1996	400	3200	2800	107476	4850	14200	4900	200	37800	600	3200	800	20600	1100	200	**202326**	13500	2000			12000		3000	**30500**	12545	**12545**	1330		12807	16930	**31067**	3200	33000	3430	5000	**44630**	700	350	**1050**	**322118**
1995		900	2300	57400	5250	10400	3300	200	36600		3200	400	14900	900	200	**135750**	9730	1400					3000	**14130**	7020	**7020**	1120		6200	8550	**15870**		31000	3230	0	**34230**				**207000**
1994		700	2100	12400	2750	11200	3650		35500		3200	400	9900	1200	200	**83000**	2140	1400					1000	**4540**	3670	**3670**							12945	1230	0	**14175**				**105385**
1993		700	1500	5400	770	3200	2200		30500		3000	200	5500	1400	200	**54370**	1490	800						**2290**	1570	**1570**							12345	1030	0	**13375**				**71605**
1992		200		400	650	600	900		22100		2700		6000	1700	200	**35250**	1100	200						**1300**	620	**620**							9865	1030	0	**10895**				**48065**
1991		200		200		400	900		11600		3200		2100	1700	200	**20300**	400							**400**	150	**150**							7680	560	0	**8240**				**29090**
1990							800		5600		4400		1200	1000	200	**13000**																	3980	180	0	**4160**				**17160**
1989									600		3900		1200	600		**6300**																	2550		0	**2550**				**8850**
2000	**600**	**4800**	**3400**	**111576**	**7700**	**13800**	**5400**	**200**	**43050**	**1200**	**4400**	**1800**	**28100**	**700**	**600**	**227326**	**15200**	**744**	**1913**	**200**	**12000**	**1630**	**3500**	**35187**	**45490**	**45490**	**2030**	**200**	**26021**	**28740**	**56991**	**4000**	**33000**	**5400**	**5000**	**47400**	**1000**	**350**	**1350**	
Global Figures Covered by the MEPI System																																							**413744**

Legend:

1) no data available; assumption

Info:

° Mould producers: see Annex 5

1.4 Personnel employed

	Latin America																Asia without India								India		East Africa					West Africa					Sout. Africa			
	Bolivia	Colombia	Costa Rica	Cuba	Ecuador	El Salvador	Guatemala	Guyana 1)	Honduras	Mexico	Nicaragua	Panama	Peru	Dom. Rep.	Haiti	**Total Latin America**	Philippines	Thailand	Laos	Sri Lanka 2)	Bangladesh 2)	Cambodia	Tadjikistan 2)	**Total Asia**	India	**Total India**	Tanzania 2)	Madagascar 2)	Kenya 2)	Uganda 2)	**Total East Africa**	Benin	Ghana 2)	Burkina Faso 2)	Ivory Coast 1)	**Total West Africa**	Namibia 2)	Mozambique 2)	**Total Southern Africa**	**Global**
2000	11	58	35	1760	117	160	74	4	963	16	60	30	503	12	10	**3813**	166	6	14		240	29	180	**635**	1681	**1681**	24		232	572	**828**	80	580	112	150	**922**	25	7	**32**	**7911**
1999	11	40	35	1805	110	160	70	4	949	13	46	23	503	9	10	**3788**	164	12	17		240	26	180	**639**	1271	**1271**	24		232	572	**828**	137	580	112	150	**979**	25	7	**32**	**7537**
1998	19	25	35	1770	103	160	70	4	921	10	46	32	503	9	10	**3717**	160	9	8		240		180	**597**	959	**959**	24		232	572	**828**	137	580	92	150	**959**	25	7	**32**	**7092**
1997	14	21	28	1725	99	160	70	4	912	6	46	27	438	16	3	**3569**	154	80			240		170	**644**	609	**609**	20		161	507	**688**	115	600	94	150	**959**	25	7	**32**	**6501**
1996	7	21	28	1695	86	160	70	4	894	6	46	15	330	16	3	**3378**	146	80			240		170	**636**	361	**361**	14		132	440	**586**	115	600	94	150	**959**	11	7	**18**	**5938**
1995		11	22	775	82	138	45	4	876		39	7	240	14	3	**2253**	126	45					170	**341**	229	**229**	7		85	230	**322**		595	94	150	**839**				**3984**
1994		8	19	305	67	155	51		841		39	6	102	14	3	**1607**	54	45					50	**149**	120	**120**							280	75	150	**505**				**2381**
1993		8	17	169	11	66	25		656		35	3	55	13	3	**1058**	32	25						**57**	54	**54**							265	53	120	**438**				**1607**
1992		3		4	8	11	15		444		33		34	16	3	**568**	25	5						**30**	16	**16**							219	53	135	**407**				**1021**
1991		3		2		8	10		189		41		11	16	3	**280**	10							**10**	4	**4**							185	44	105	**334**				**628**
1990							10		95		76		8	13	3	**202**																	104	23	75	**202**				**404**
1989									10		68		8	8		**94**																	65		60	**125**				**219**
2000	**11**	**58**	**35**	**1760**	**117**	**160**	**74**	**4**	**963**	**16**	**60**	**30**	**503**	**12**	**10**	**3813**	**166**	**6**	**14**	**0**	**240**	**29**	**180**	**635**	**1681**	**1681**	**24**	**0**	**232**	**572**	**828**	**80**	**580**	**112**	**150**	**922**	**25**	**7**	**32**	
Global Figures Covered by the MEPI System																																							**7911**

Legend:

1) no data available; assumption

2) Countries with ongoing activities, but not supervised in 2000

Info:

° Recommended factor of 1.7 for indirect employment segment covered

° Global employment increase of 5%

1.5 Total Production of MCR Tiles m^2 (10'000) accumulated

	Latin America																	Asia without India								India		East Africa					West Africa					South. Africa 3)			
	Bolivia	Colombia	Costa Rica	Cuba	Ecuador	El Salvador	Guatemala	Guyana 1)	Honduras	Mexico	Nicaragua	Panama	Peru	Dom. Rep.	Haiti	**Total Latin America**	Philippines	Thailand	Laos	Sri Lanka 2)	Bangladesh 2)	Cambodia	Tadjikistan 1)	**Total Asia**	India	**Total India**	Tanzania 1)	Madagascar 2)	Kenya 1)	Uganda 1)	**Total East-Africa**	Benin	Ghana 1)	Burkina Faso 1)	Ivory Coast 1)	**Total West-Africa**	Namibia 1)	Mozambique 1)	**Total Southern Africa**	**Global**
2000	2.1	14.8	16.5	654	47.7	121	62.5	1.4	617	2.5	31.9	3.2	118	9.6	4.1	**1705.8**	52.5	2.5	1.6			1.0	12	**69.6**	142	**142.3**	1.3		6.1	4.9	**12.3**	17.4	269.0	11.6	33.1	**331.1**	1.3	1.4	**2.7**	**2263.8**
1999	1.3	14.2	14.3	551	37.5	103	53.0	1.4	538	1.6	28.8	2.5	92.3	9.2	3.3	**1451.5**	47.8	2.4	0.9			0.7	12	**63.8**	89.2	**89.2**	1.3		6.1	4.9	**12.3**	12.4	230.6	10.0	33.1	**286.1**	1.3	1.4	**2.7**	**1905.6**
1998	0.4	10.5	12.3	428	29.0	83.9	43.8	1.1	466	0.8	26.4	2.1	75.3	8.8	2.5	**1191.1**	43.0	2.3	0.6				8.1	**54.0**	66.6	**66.6**	0.9		5.4	3.7	**10.0**	10.7	192.2	8.4	33.1	**244.4**	1.2	1.0	**2.2**	**1568.3**
1997	0.07	5.6	10.3	298	20.0	67.5	34.3	0.8	390	0.4	24.3	1.5	58.2	8.1	1.8	**921.6**	37.4	2.1						**39.5**	47.2	**47.2**	0.5		4.7	3.3	**8.5**	9.6	153.8	6.4	33.1	**202.9**	1.1	0.6	**1.7**	**1221.4**
1996	0.01	3.6	6.8	157	11.9	52.5	24.9	0.5	316	0.1	22.1	0.9	39.7	7.5	1.5	**645.2**	28.2	1.9						**30.1**	30.4	**30.4**	0.4		4.2	3.1	**7.7**	9.0	119.4	4.7	24.9	**158.0**	0.2	0.2	**0.4**	**871.8**
1995		2.1	4.0	52.1	5.4	27.5	12.7	0.2	243.3		20.2	0.4	24.0	6.8	1.2	**398.7**	15.3	1.6					2.1	**19.0**	15.7	**15.7**	0.2		3.0	2.7	**5.9**	3.1	99.4	3.4	16.7	**119.5**				**558.8**
1994		1.3	1.7	10.3	2.2	7.5	8.0		173.0		18.8	0.3	11.7	6.2	0.9	**240.9**	4.5	0.7					0.1	**5.3**	9.5	**9.5**						1.6	61.4	2.4	12.9	**76.7**				**332.4**
1993		0.8	0.0	1.5	0.6	0.7	5.2		118.0		17.5	0.1	6.8	5.2	0.7	**156.3**	2.1	0.2						**2.3**	3.5	**3.5**						0.6	53.4	1.5	9.1	**64.0**				**226.1**
1992		0.5		0.3	0.1	0.3	2.6		67.0		16.0		4.3	4.0	0.5	**95.1**	0.8							**0.8**	1.0	**1.0**						0.1	29.5	0.9	8.1	**38.5**				**135.3**
1991		0.1		0.1		0.1	1.0		29.0		12.0		2.4	1.5	0.4	**46.2**	0.2							**0.2**	0.3	**0.3**							11.4	0.3	6.1	**17.8**				**64.5**
1990							0.1		9.8		8.0		0.9	0.8	0.2	**19.6**																	3.5	0.1	3.0	**6.6**				**26.1**
1989									0.8		4.0		0.4	0.2		**5.4**																	0.9		1.0	**1.9**				**7.3**
2000	**2.1**	**14.8**	**16.5**	**654**	**47.7**	**121**	**62.5**	**1.4**	**617**	**2.5**	**31.9**	**3.2**	**118**	**9.6**	**4.1**	**1705.8**	**52.5**	**2.5**	**1.6**	**0**	**0**	**1**	**12**	**69.6**	**142**	**142.3**	**1.3**	**0**	**6.1**	**4.9**	**12.3**	**17.4**	**269**	**11.6**	**33.1**	**331.1**	**1.3**	**1.4**	**2.7**	
Global Figures Covered by the MEPI System																																							**2263.8**

Legend:

1) no data available; assumption

2) countries with ongoing activities, but not supervised in 2000 (sleeping projects)

3) independent production is reported also from RSA and Zimbabwe

Info:

- Assumption: total m^2 tiles produced = total m^2 tiles sold
- Production of tiles is directly linked with moulds operating
- Global increase of 18.5%

2.1 Total SDC financed expenses (1'000.-)

	Latin America																Asia without India								India		East Africa					West Africa					South. Africa			
	Bolivia	Colombia	Costa Rica	Cuba	Ecuador	El Salvador	Guatemala	Guyana	Honduras	Mexico	Nicaragua	Panama	Peru	Dom. Rep.	Haiti	**Total Latin America**	Philippines	Thailand	Laos	Sri Lanka 2)	Bangladesh 3)	Cambodia	Tadjikistan 3)	**Total Asia (w/o India)**	India	**Total India**	Tanzania 2)	Madagascar 2)	Kenya 2)	Uganda 2)	**Total East Africa**	Benin	Ghana 3)	Burkina Faso	Ivory Coast	**Total West Africa**	Namibia	Mozambique	**Total Southern Africa**	**Global**
2000	4.0	0.0	0.0	13.0	5.0	2.0	3.5	0.0	5.5	0.0	0.0	2.0	0.0	0.0	0.0	**35.0**	8.2	0.5	1.0			0.5		**10.2**	104.4	**104.4**	0.0		0.0	0.0	**0.0**	0.0	0.0	0.6	0.0	**0.6**	0.0	0.0	**0.0**	**150.2**
1999	3.0	0.0	0.0	15.0	7.0	0.5	3.0	0.0	7.5	0.0	0.0	3.9	0.0	0.0	0.0	**39.9**	4.0	0.0	0.0			0.0		**4.0**	67.2	**67.2**	0.0		0.0	0.0	**0.0**	0.0	0.0	0.6	0.0	**0.6**	0.0	0.0	**0.0**	**111.7**
1998	3.0	2.3	1.3	11.0	6.0	2.2	6.2	0.0	16.0	0.0	2.6	2.9	19.0	2.1	0.0	**74.6**	10.0	9.0	0.0					**19.0**	53.6	**53.6**	1.0		1.0	1.0	**3.0**	9.0	0.0	6.9	9.8	**25.7**	0.0	0.0	**0.0**	**175.9**
1997	5.0	1.0	3.0	16.0	7.5	5.0	6.0	0.0	22.8	0.0	5.0	1.0	27.2	3.0		**102.5**	5.5	14.4				7.4		**27.3**	101.4	**101.4**	1.0		1.0	1.0	**3.0**	26.2	4.7	9.0	28.0	**67.9**	0.0	0.0	**0.0**	**302.1**
1996	8.0	4.0	3.4	24.0	10.0	8.0	8.0	0.0	35.0	0.0	7.0	1.0	46.9	3.0		**158.3**	7.2	14.4				7.4		**29.0**	101.0	**101.0**	8.0		8.0	8.0	**24.0**	26.2	4.7	5.2	28.0	**64.1**	0.0	0.0	**0.0**	**376.4**
1995		2.0	2.0	18.0	14.0	11.0	7.0	0.0	10.0		2.0	0.0	96.9	3.0		**165.9**	19.0	26.7						**45.7**	96.1	**96.1**	12.0		1.5	11.5	**25.0**		0.0	6.0	20.0	**26.0**				**358.7**
1994		3.0	7.0	21.0	13.0	10.0	8.0		10.0		2.0	0.0	82.0	3.0		**159.0**	35.0	26.7				20.0		**81.7**	91.7	**91.7**					**0.0**		14.8	6.0	20.0	**40.8**				**373.2**
1993		5.8	11.8	18.4	10.0	9.8	2.0		14.0		8.0		64.6	2.0		**146.4**	50.0	28.0				20.0		**98.0**	62.1	**62.1**					**0.0**		18.4	6.0	6.0	**30.4**				**336.9**
1992		3.0		5.0	5.0	2.0	2.0		10.0		3.0		58.6	2.0		**90.6**	26.0	9.6		15.0	15.0	20.0		**85.6**	44.4	**44.4**					**0.0**		48.2	6.0		**54.2**				**274.8**
1991		10.0		10.0		8.0	2.0		12.0		3.0		63.1	7.0		**115.1**	40.0			15.0	15.0	20.0		**90.0**	50.8	**50.8**	15.0				**15.0**		25.8	10.0		**35.8**				**306.7**
1990							18.0		14.0		3.0		29.2	3.0		**67.2**				15.0	15.0			**30.0**			20.0	20.0			**40.0**		27.4	11.0		**38.4**				**175.6**
1989									35.0		30.0		80.0	10.0		**155.0**												20.0			**20.0**		7.2			**7.2**				**182.2**
																																								3124
Total	**23.0**	**31.1**	**28.5**	**151.4**	**77.5**	**58.5**	**65.7**	**0.0**	**191.8**	**0.0**	**65.6**	**10.8**	**567.5**	**38.1**	**0.0**	**1309.5**	**204.9**	**129.3**	**1.0**	**45.0**	**45.0**	**95.3**	**0.0**	**520.5**	**772.7**	**772.7**	**57.0**	**40.0**	**11.5**	**21.5**	**130.0**	**61.4**	**151.2**	**67.3**	**111.8**	**391.7**	**0.0**	**0.0**	**0.0**	
Global Figures Covered by the MEPI System																																							**3124**

Legend:

2) Countries with ongoing activities, but not supervised in 2000
3) MEPI data not received

Info:

° No detailled costs, showing only the total SDC investment
° Assumption: project overheads are not equally handled by the project managers
° Assumed figures

2.2 Total autofinanced expenses (1'000.-)

	Latin America																Asia without India								India		East Africa					West Africa					South. Africa			
	Bolivia	Colombia	Costa Rica	Cuba	Ecuador	El Salvador	Guatemala	Guyana	Honduras	Mexico	Nicaragua	Panama	Peru	Dom. Rep.	Haiti	**Total Latin America**	Philippines	Thailand	Laos	Sri Lanka **2)**	Bangladesh 2)	Cambodia	Tadjikistan 2)	**Total Asia (w. India)**	India	**Total India**	Tanzania **1)**	Madagascar **2)**	Kenya **1)**	Uganda **1)**	**Total East-Africa**	Benin	Ghana **1)**	Burkina Faso 1)	Ivory Coast **1)**	**Total West-Africa**	Namibia 1)	Mozambique	**Total Southern Africa**	**Global**
2000	0	49	2	85	18	2	7	0	49	9	32	17	0	8	0	**278**	5.1	0.2	5.2			3.4		**13.9**	115	**115.4**	0.0		0.0	0.0	**0.0**	10.5	0	17.5	0	**28.0**	0.5	0	**0.5**	**435.8**
1999	0	29	2	115	25	2.5	5	0	79	10	11	6	0	0	0	**284.5**	6.3	1.6	8.6			0		**16.5**	74	**74.0**	0.0		0.0	0.0	**0.0**	10.5	0	17.5	0	**28.0**	0.5	0	**0.5**	**403.5**
1998	10	9.5	14	125	43	0	13	0	38	10	3	13	48	1	15	**342.5**	5.8	1.5	0					**7.3**	47.6	**47.6**	0.0		0.0	0.0	**0.0**	26	0	18	0	**44.0**	0.5	0	**0.5**	**441.9**
1997	13.5	0	0	140	42	0	0	0	58	0	0	24	110	0	4	**391.5**	6.6	41.3						**47.9**	5.3	**5.3**	0.0		8.7	0.0	**8.7**		23	30.9	65.5	**119.4**	9.0	0.0	9.0	**581.8**
1996	12.5	48	15	1830	30	35	40	7	58	15	16	16	111	0	1	**2235**	8.6	41.3						**49.9**	12	**12.0**	5.0		5.6	6.0	**16.6**		23	5.0	65.5	**93.5**	19.0	28.0	47.0	**2453.5**
1995		6	8	765	36.4	9	9		97		0	15	25	0	1	**970.4**	8.7	41.3						**50**	10	**10**	7.5		5.6	6.0	**19.1**		23	2.3	65.5	**90.8**				**1140.3**
1994		0	7	260	58	114	31		245		7	6	22	0	1	**750**	13	41.3						**54.3**	7	**7**							23	6.4	65.5	**94.9**				**906.2**
1993		6	21	265	9	76	8		256		8	7	12	2	1	**670**	12	5.5						**17.5**	5	**5**							31.5	43.8	11.1	**86.4**				**778.9**
1992		1		40	19	11	10		345		2		13.8	0	1	**441.8**	11.5	21						**32.5**	5	**5**							21.2	70.4	35	**126.6**				**605.9**
1991		4		19		11	2		130		0		5	15	1	**186**	17	3.1						**20.1**	5	**5**							74.3	93.8	70	**238.1**				**449.2**
1990							13		102		25		0	17	10	**157**																	85.4	14.5		**99.9**				**256.9**
1989									10		40		18	15		**83**																	45.6	4.0		**49.6**				**132.6**
																																								8586.5
Total	**36**	**153**	**69**	**3644**	**280**	**261**	**138**	**7**	**1467**	**44**	**144**	**104**	**365**	**58**	**35**	**6789**	**94.6**	**198**	**13.8**	**0**	**0**	**3.4**	**0**	**310**	**286**	**286.3**	**12.5**	**0**	**19.9**	**12**	**44.4**	**47**	**350**	**324**	**378**	**1099**	**29.5**	**28**	**57.5**	
Global Figures Covered by the MEPI System																																							**8586.5**

Legend:

1) no MEPI information available; totally independent, no activities
2) Countries with ongoing activities, but not supervised in 2000 (sleeping projects)

Info:

° Assumption: project overheads are not equally handled by the project managers
° Assumed figures
° global tendency of autofinanced projects decreasing

2.3 Other donors financial expenses (1'000.-)

	Latin America																Asia without India								India		East Africa					West Africa					South. Africa			
	Bolivia	Colombia	Costa Rica	Cuba	Ecuador	El Salvador	Guatemala	Guyana	Honduras	Mexico	Nicaragua	Panama	Peru	Dom. Rep.	Haiti	**Total Latin America**	Philippines	Thailand	Laos	Sri Lanka **2)**	Bangladesh **3)**	Cambodia	Tadjikistan **3)**	**Total Asia (w/o India)**	India	**Total India**	Tanzania **2)**	Madagascar **2)**	Kenya **2)**	Uganda **2)**	**Total East-Africa**	Benin 3)	Ghana **1)**	Burkina Faso	Ivory Coast **1)**	**Total West-Africa**	Namibia	Mozambique	**Total Southern Africa**	**Global**
																																							0.0
2000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0	0.7	0.0			0.5		**1.2**	6.5	**6.5**	0.0		0.0	0.0	**0.0**	8.0	0.0	8.0	0.0	**16.0**	0.0	0.0	**0.0**	**23.7**
1999	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0	8.9	0.0			0.0		**8.9**	2.2	**2.2**	0.0		0.0	0.0	**0.0**	10.7	0.0	8.9	0.0	**19.6**	0.0	0.0	**0.0**	**30.7**
1998	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.5	0.0	0.0	**31.5**	0.0	2.2	0.0					**2.2**	4.3	**4.3**	0.0		0.0	0.0	**0.0**	0.0	0.0	1.6	0.0	**1.6**	0.0	0.0	**0.0**	**39.6**
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	80.0	0.0	0.0	**80.0**	0.0	0.0						**0.0**	1.5	**1.5**	0.0		0.0	0.0	**0.0**	0.0	0.0	9.5	0.0	**9.5**	0.0	0.0	**0.0**	**91.0**
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0	0.0	0.0	**13.0**	0.0	0.0						**0.0**	9.0	**9.0**	0.0		0.0	0.0	**0.0**	0.0	0.0	10.8	0.0	**10.8**	40.0	0.0	**40.0**	**72.8**
1995		0.0	0.0	8.0	0.0	0.0	9.0		10.0		0.0	3.0	66.4	0.0	0.0	**96.4**	0.0	0.0						**0.0**	0.0	**0.0**	0.0		0.0	0.0	**0.0**		0.0	0.0	0.0	**0.0**				**96.4**
1994		0.0	0.0	20.0	10.0	20.0	28.0		30.0		0.0	0.0	61.3	0.0	0.0	**169.3**	0.0	0.0						**0.0**	0.0	**0.0**							0.0	0.0	0.0	**0.0**				**169.3**
1993				30.0	0.0	0.0	0.0		27.0		0.0		41.0	0.0	0.0	**98.0**						0.0		**0.0**			0.0				**0.0**									**98.0**
1992					6.0		2.0		0.0		0.0		44.0	0.0	0.0	**52.0**																								**52.0**
1991							0.0		4.0		0.0			5.0	0.0	**9.0**																								**9.0**
1990							5.0		10.0		20.0			5.0	0.0	**40.0**			0.0	0.0	0.0			**0.0**																	**40.0**
1989									10.0		100.0			5.0		**115.0**												0.0		**0.0**									**115.0**
																																							837.5
Total	**0.0**	**0.0**	**0.0**	**58.0**	**16.0**	**20.0**	**44.0**	**0.0**	**91.0**	**0.0**	**120.0**	**3.0**	**337.2**	**15.0**	**0.0**	**704.2**	**0.0**	**11.8**	**0.0**	**0.0**	**0.0**	**0.5**	**0.0**	**12.3**	**23.5**	**23.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**18.7**	**0.0**	**38.8**	**0.0**	**57.5**	**40.0**	**0.0**	**40.0**	
Global Figures Covered by the MEPI System																																							**837.5**

Legend:

1) no MEPI information available; totally independent, no activities
2) Countries with ongoing activities, but not supervised in 2000 (sleeping projects)
3) MEPI data not received

Info:

Donors are:
° HEKS
° Brot für die Welt
° Johnson Fund
° Stadt Zürich
° Plan Honduras
° Gospe
° Caritas
° Misereor

3.1 Selling price per m^2 MCR tiles (US$ / m^2)

	Latin America																Asia without India								India		East Africa					West Africa					South. Africa			
	Bolivia	Colombia	Costa Rica	Cuba	Ecuador	El Salvador	Guatemala	Guyana	Honduras	Mexico	Nicaragua	Panama	Peru	Dom. Rep.	Haiti	**Average Latin America**	Philippines	Thailand	Laos	Sri Lanka **1)**	Bangladesh **1)**	Cambodia	Tadjikistan **1)**	**Average Asia (w/o India)**	India	**Average India**	Tanzania **1)**	Madagascar **1)**	Kenya **1)**	Uganda **1)**	**Average East-Africa**	Benin	Ghana **3)**	Burkina Faso	Ivory Coast **1)**	**Average West-Africa**	Namibia	Mozambique	**Average Southern Africa**	**Global Average**
2000	3.0	4.5	4.5	2.8	2.5	3.0	2.9	3.5	2.8	3.6	3.1	3.5	4.0	3.3	3.5	**3.4**	3.5	2.1	2.2			2.3		**2.5**	1.9	**1.9**	5.7		4.9	4.9	**5.2**	4.5	5.7	4.6		**4.9**	4.2		**4.2**	**3.7**
1999	3.0	4.4	4.5	2.8	2.4	3.0	3.0	3.5	2.8	3.5	3.0	3.6	4.0	3.3	3.5	**3.4**	4.7	2.3	2.0			2.1	2.8	**2.8**	1.9	**1.9**	5.7		4.9	4.9	**5.2**	4.5	5.7	4.6		**4.9**	4.2		**4.2**	**3.6**
1998	3.0	4.4	4.5	2.8	2.4	3.0	3.0	3.5	2.8	3.5	3.0	3.6	4.4	3.3	3.5	**3.4**	4.1	2.4	2.9					**3.1**	2.0	**2.0**	5.7		4.9	4.9	**5.2**		5.7	4.5		**5.1**	4.2		**4.2**	**3.7**
1997	3.0	4.4	4.5	2.5	2.6	2.8	3.0	3.5	2.5	3.5	2.8	2.8	4.6	3.3	3.2	**3.3**	4.4							**4.4**	2.1	**2.1**	5.4		4.9	3.7	**4.7**		2.6	4.0	4.0	**3.5**	4.8		**4.8**	**3.5**
1996	2.7	4.4	4.5	2.5	2.4	2.8	3.0	3.5	2.5	3.5	2.8	2.8	4.6	3.2	3.5	**3.0**	5.9							**5.9**	1.9	**1.9**	5.0		4.9	4.8	**4.9**		2.6	4.0	4.0	**3.5**	4.6	4.6	**4.6**	**3.6**
1995		2.8	4.5	2.5	2.6	2.8	3.0	3.5	2.5		2.8	2.6	4.5	3.5	3.4	**3.4**	5.5	3.2						**4.4**	1.8	**1.8**	3.9		4.5	4.3	**4.2**		2.6	4.0	3.6	**3.4**				**3.4**
1994		2.8	4.4	2.5	1.9	2.8	2.7		2.5		2.5	3.2	4.6	3.4	2.5	**3.0**	5.4	3.2						**4.3**									2.6	4.0	3.6	**3.4**				**3.2**
1993		2.5		2.5	2.0	2.5	2.6		2.3		2.8	3.2	5.0	2.5	2.5	**2.8**	4.6	2.3						**3.4**									2.6	3.3	2.9	**2.9**				**2.9**
1992		2.5		2.5	2.0	2.5	2.6		2.4		2.3		4.5	2.5	2.5	**2.6**	6.4							**6.4**									2.9	2.4	2.5	**2.6**				**2.9**
1991		2.5		2.5		2.5	3.0		2.3		2.4			2.5	2.1	**2.5**	6.8							**6.8**									3.3		1.8	**2.5**				**2.9**
1990							2.1		2.0		3.5			2.1	2.0	**2.4**																	4.0	1.1	1.5	**2.2**				**2.3**
1989									1.8		1.0			2.0		**1.6**																	3.3		1.4	**2.3**				**1.9**
2000	**3**	**4.5**	**4.5**	**2.8**	**2.5**	**3**	**2.9**	**3.5**	**2.8**	**3.6**	**3.1**	**3.5**	**4**	**3.3**	**3.5**	**3.37**	**3.5**	**2.1**	**2.2**	**0**	**0**	**2.3**	**0**	**2.53**	**1.9**	**1.9**	**5.7**	**0**	**4.9**	**4.9**	**5.17**	**4.5**	**5.7**	**4.6**	**0**	**4.93**	**4.2**	**0**	**4.2**	**3.682**
Global Figures Covered by the MEPI System																																							**3.7**

Legend:

1) no data available
2) received data not reliable, assumption: same price as 1998
3) data according to mission report 9/10, 1998, SKAT/RAS

Info:

° Global average of the selling price is 3.6 US$ per m^2

3.2 Selling price per m^2 GI sheet (US$)

	Latin America																Asia without India								India		East Africa					West Africa					South. Africa			
	Bolivia	Colombia	Costa Rica	Cuba **1)**	Ecuador	El Salvador	Guatemala	Guyana	Honduras	Mexico	Nicaragua	Panama	Peru	Dom. Rep.	Haiti	**Average Latin America**	Philippines	Thailand	Laos	Sri Lanka **1)**	Bangladesh **1)**	Cambodia	Tadjikistan **1)**	**Average Asia (w. India)**	India	**Average India**	Tanzania **2)**	Madagascar **1)**	Kenya **2)**	Uganda **2)**	**Average East-Africa**	Benin	Ghana **3)**	Burkina Faso	Ivory Coast **1)**	**Average West-Africa**	Namibia	Mozambique **1)**	**Average Southern Africa**	**Global Average**
2000	4.0	5.0	4.0	0.0	2.7	3.0	3.5	4.0	3.0	3.6	4.0	3.6	4.7	3.3	3.5	**3.7**	2.5	1.7	1.3			1.7		**1.8**	3	**3.0**	4.3		2.8	3.2	**3.4**	3.6	3.4	6.5		**4.5**	5.5		**5.5**	**3.5**
1999	4.0	5.0	4.0		2.6	3.2	3.5	4.0	3.0	3.5	4.0	3.6	4.7	3.2	3.5	**3.7**	3.2	1.6	1.6			1.8		**2.1**	3	**3.0**	4.3		2.8	3.2	**3.4**	2.8	3.4	6.5		**4.2**	5.5		**5.5**	**3.5**
1998	4.0	5.0	4.0		2.6	3.2	3.5	4.0	3.0	3.8	4.5	3.4	4.7	3.2	3.5	**3.7**	3.6	1.8	1.9					**2.4**	3.1	**3.1**	4.3		2.8	3.2	**3.4**		3.4	6.4		**4.9**	5.5		**5.5**	**3.7**
1997	4.2	5.3	4.0		3.0	3.2	3.5	4.0	3.0	3.8	4.5	3.0	4.9	3.2	3.5	**3.8**	4.1							**4.1**	2.8	**2.8**	3.8		2.8	3.7	**5.2**		2.2	6.4	5.6	**4.7**	5.5		**5.5**	**3.9**
1996	5.0	5.3	4.0		2.4	2.9	3.5	4.0	3.0	3.8	4.6	3.0	4.9	3.2	3.5	**3.4**	5.5							**5.5**	2.6	**2.6**	2.9		2.8	3.4	**3.0**					**0.0**				**3.7**
1995		5.2	4.0		3.0	3.0	3.5	4.0	3.0		4.9	2.9	4.7	3.0	3.5	**3.7**	5	3.4						**4.2**	2.8	**2.8**	6.5		4.0	5.2	**5.2**		2.2	6.4	5.6	**4.7**	5.2	5.4		**4.1**
1994		5.2	3.8		2.7	3.0	3.4		3.0		4.5	4.0	5.5	2.9	2.6	**3.8**	5.8	3.4						**4.6**									2.2	6.4	5.6	**4.7**				**4.1**
1993		5.1			4.0	2.8	3.3		3.0		4.5	4.0	6.7	2.6	2.6	**4.0**	4.8	2.5						**3.6**									2.1	3.6	2.8	**2.8**				**3.7**
1992		4.8			4.0	2.8	3.3		3.0		4.5		6.6	2.6	2.6	**4.0**	5.7							**5.7**									2.3	2.7	2.5	**2.5**				**3.7**
1991		4.8				2.8	3.3		3.0		4.5			2.6	2.5	**3.5**	5.9							**5.9**									3.0		2.3	**2.6**				**3.6**
1990							2.7		3.0		4.5			2.5	2.5	**3.2**																	4.4	2.3	2.1	**2.9**				**3.1**
1989									3.7		6.8			2.5		**4.3**																	4.4			**4.4**				**4.3**
2000	**4**	**5**	**4**	**0**	**2.7**	**3**	**3.5**	**4**	**3**	**3.6**	**4**	**3.6**	**4.7**	**3.3**	**3.5**	**3.7**	**2.5**	**1.7**	**1.3**	**0**	**0**	**1.7**	**0**	**1.8**	**3**	**3**	**4.3**	**0**	**2.8**	**3.2**	**3.4**	**3.6**	**3.4**	**6.5**	**0**	**4.5**	**5.5**	**0**	**5.5**	**3.5154**
Global Figures Covered by the MEPI System																																							**3.5**

Legend:

1) no data available
2) received data not reliable, assumption: same price as 1997

Info:

° Cheapest GI sheet available (price listed)

4.1 Total Cost per Job created (1000.- US$)

	Latin America																Asia without India								India		East Africa					West Africa					South. Africa			
	Bolivia	Colombia	Costa Rica	Cuba	Ecuador	El Salvador	Guatemala	Guyana	Honduras	Mexico	Nicaragua	Panama	Peru	Dom. Rep.	Haiti	**Average Latin America**	Philippines	Thailand	Laos	Sri Lanka	Bangladesh	Cambodia	Tadjikistan	**Average Asia (w/o. India)**	India **3)**	**Average India**	Tanzania **3)**	Madagascar **1)**	Kenya **3)**	Uganda **3)**	**Average East-Africa**	Benin	Ghana **3)**	Burkina Faso	Ivory Coast **1)**	**Average West-Africa**	Namibia	Mozambique	**Average Southern Africa**	**Global Average**
2000	5.4	3.1	2.7	2.2	3.2	2.1	3.4	1.7	1.8	2.7	5.5	3.5	2.5	9.3	3.5	**3.5**	4.1	20.0	2.6			0.9		**6.9**	0.7	**0.7**	0.5		0.3	0.4	**0.4**	1.4	1.5			**1.5**	2.7	4.0	**3.4**	**3.4**
1999	5.0	3.2	2.7	2.1	3.2	2.1	3.4	1.8	1.8	2.7	6.5	3.7	2.5	11.5	3.5	**3.7**	2.1	19.0	2.0			0.8		**6.0**	0.7	**0.7**	0.5		0.3	0.4	**0.4**	1.4	1.5			**1.5**	2.7	4.0	**3.4**	**3.4**
1998	2.7	4.0	2.7	2.1	3.1	2.1	3.3	1.8	1.8	2.5	6.2	2.4	2.5	11.5	3.5	**3.5**	2.1	1.5	2.1					**1.9**	0.8	**0.8**	0.5		0.3	0.4	**0.4**		1.5	3.8		**2.7**	2.7	4.0	**3.4**	**3.0**
1997	2.8	4.2	2.8	2.0	2.7	2.1	3.0	1.8	1.7	2.5	6.1	2.2	2.6	6.3	6.7	**3.3**	1.6	1.5					6.1	**3.1**	1.0	**1.0**	1.9		0.8	1.0	**1.2**		1.5	4.0	2.0	**2.5**	2.7	4.0	**3.4**	**2.9**
1996	2.9	4.1	2.7	2.0	2.6	2.0	2.9	1.8	1.6	2.5	6.0	2.3	2.8	6.0	5.3	**3.7**	2.1							**0.7**	1.2	**1.2**	1.9		0.8	1.0	**1.2**		1.5	5.9	2.0	**3.1**	5.3	4.0	**4.7**	**2.8**
1995		4.4	2.6	1.9	2.2	2.0	3.5		1.6		6.5	2.6	3.1	6.7	5.0	**3.4**	2.3	1.5					6.1	**3.3**	1.5	**1.5**							1.5	4.6	2.0	**2.7**				**3.1**
1994		4.1	2.5	2.3	1.9	1.7	2.6		1.5		6.4	2.2	5.0	6.5	4.7	**3.3**	3.8	1.5						**2.6**	2.3	**2.3**							1.5	4.3	2.0	**2.6**				**3.1**
1993		3.7	1.9	2.3	4.5	1.8	2.6		1.5		6.9	2.3	7.5	6.7	4.3	**3.8**	4.9	1.4						**3.1**	3.2	**3.2**							1.5	5.0	1.7	**2.7**				**3.5**
1992		6.0		18.5	3.8	2.9	3.6		1.5		6.8		9.0	5.2	4.0	**6.4**	3.8	0.6						**2.2**	6.6	**6.6**							1.5	4.0	0.9	**2.1**				**5.0**
1991		4.7		14.5		2.4	4.0		1.7		5.4		17.8	5.1	3.7	**6.9**	5.7							**5.7**	13.9	**13.9**							1.4	3.1	1.0	**1.8**				**6.2**
1990							3.6		1.9		2.9		15.9	4.2	3.3	**5.7**																	1.6	1.3	1.0	**1.3**				**4.0**
1989									5.5		2.5		12.3	3.8		**6.0**																	0.8			**0.8**				**5.0**

Legend:

1) Previous SDC financed activities done by DECO / ILO but no MEPI information available
2) Countries with ongoing activities, but not supervised in 1999 (sleeping projects)
3) MEPI data not received, assumption

Info:

° Global average of cost per job created: US$ 3'400
° With the development towards independence, it is very difficult to trace auto-financed sources of the different projects

4.2 Total Cost per m^2 produced (total cost / total production)

	Latin America																	Asia without India								India		East Africa					West Africa					South. Africa			
	Bolivia	Colombia	Costa Rica	Cuba	Ecuador	El Salvador	Guatemala	Guyana	Honduras	Mexico	Nicaragua	Panama	Peru	Dom. Rep.	Haiti	**Average Latin America**	Philippines	Thailand	Laos	Sri Lanka **2)**	Bangladesh **3)**	Cambodia	Tadjikistan **3)**	**Average Asia**	India	**Average India**	Tanzania **2)**	Madagascar **2)**	Kenya **2)**	Uganda **2)**	**Average East-Africa**	Benin	Ghana **3)**	Burkina Faso	Ivory Coast **1)**	**Average West-Africa**	Namibia	Mozambique	**Average Soutern Africa**	**Global Average**
2000	2.8	0.9	0.7	0.6	0.8	0.3	0.0	0.5	0.3	1.8	1.1	3.3	1.3	1.2	1.1	**1.1**	0.7	6.1	3.2			2.5		**3.1**	0.8	**0.8**	1.4		1.4	5.8	**2.9**	11.2		2.7		**7.0**	5.6	2.9	**4.3**	**2.3**
1999	4.2	0.9	0.7	0.7	0.9	0.3	0.5	0.5	0.3	2.2	1.0	3.4	1	1	1.1	**1.2**	0.7	8.8	3.7			3		**4.1**	1	**1**	1.4		1.4	5.8	**2.9**	11.2		2.7		**7.0**	5.6	2.9	**4.3**	**2.5**
1998	13.0	1.0	0.8	0.9	1.1	0.4	0.5	0.6	0.4	3.1	1.1	3.6	1.6	1.2	1.4	**2.0**	0.8		2.8					**1.8**	1.1	**1.1**	1.4		1.4	5.8	**2.9**			2.7		**2.7**	5.6	2.9	**4.3**	**2.3**
1997	52.7	1.6	0.8	1.2	1.4	0.5	0.8	1.4	0.4	15.0	1.2	4.0	2.0	1.2	1.1	**5.7**	0.7	6.1					0.5	**2.4**	1.4	**1.4**	6.3		1.7	6.5	**4.8**		0.7	3.7	2.4	**2.3**	6.2	4.7	**5.5**	**4.7**
1996	20.5	2.4	1.1	2.1	1.9	0.6	0.8	1.4	0.5	15	1.3	3.9	2.3	1.3	1.4	**4.2**	1.1							**1.1**	1.5	**1.5**	27.5		5.6	30.5	**21.2**			4.2			29.5	14	**21.8**	**7.8**
1995		1.7	1.4	2.8	3.3	1.0	1.0		0.6		1.3	4.5	3.1	1.4	1.3	**2.0**	4.3	6.1					0.5	**3.6**	2.4	**2.4**							0.7	6.0	2.4	**3.0**				**2.5**
1994		2.5	2.8	6.7	5.9	3.5	1.4		0.7		1.3	5.2	4.8	1.5	1.5	**3.3**	4.6	6.1						**5.3**	2.9	**2.9**							0.7	11.8	2.4	**5.0**				**3.8**
1993		3.7		26.7	8.2	16.8	1.2		0.8		1.4	14.0	6.0	1.7	1.8	**8.1**	7.2	3.0						**5.1**	4.9	**4.9**							0.7	17.9	2.3	**7.0**				**7.3**
1992		3.6		29.6	30.0	10.7	2.1		1.0		1.4		7.1	2.1	2.3	**9.7**	12.2	4.7						**8.4**	10.5	**10.5**							1.1	24.1	1.6	**8.9**				**9.5**
1991		14.0		58.0		19.0	4.0		1.1		1.8		8.1	5.5	3.1	**13.9**	23.8							**23.8**	22.4	**22.4**							2.3	44.1	1.8	**16.1**				**15.8**
1990							72.0		1.9		2.7		14.0	6.9	6.7	**19.5**																	4.7	34.4	2.5	**13.9**				**17.4**
1989									6.8		4.3		28.0	15.0		**13.5**																	5.6			**5.6**				**11.9**

Legend:

1) Previous SDC financed activities done by DECO / ILO but no MEPI information available

2) Countries with ongoing activities, but not supervised in 1999 (sleeping pr

3) MEPI data not received; assumption

4.3 MCR production in m^2 per year (x10'000), (not accumulated)

	Latin America																Asia without India									India		East Africa					West Africa					South. Africa			
	Bolivia	Colombia	Costa Rica	Cuba	Ecuador	El Salvador	Guatemala	Guyana	Honduras	Mexico	Nicaragua	Panama	Peru	Dom. Rep.	Haiti	**Total Latin America**	Philippines	Thailand	Laos	Sri Lanka **2)**	Bangladesh **3)**	Cambodia	Tadjikistan **3)**	**Total Asia (w/o India)**	India	**Total India**	Tanzania **2)**	Madagascar **2)**	Kenya **2)**	Uganda **2)**	**Total East-Africa**	Benin	Ghana **4)**	Burkina Faso	Ivory Coast **5)**	**Total West-Africa**	Namibia	Mozambique	**Total Southern Africa**	**Global**
2000	0.8	5.6	2.2	103	10.2	18.5	9.5	0.0	78.5	0.9	3.1	0.7	17.0	0.4	0.8	**251.1**	4.6	0.05	0.7			0.2	3.9	**9.5**	53.2	**53.2**	0.4		0.7	0.4	**1.5**	5.0	38.4	3.2		**46.6**	0.1	0.4	**0.5**	**362.4**
1999	0.9	3.7	2.0	123	8.5	19.0	9.2	0.3	72.5	0.8	2.4	0.4	17.0	0.4	0.8	**260.4**	4.8	0.1	0.3			0.2	3.9	**9.3**	22.6	**22.6**	0.4		0.7	0.4	**1.5**	0.6	38.4	3.2	0.0	**42.2**	0.1	0.4	**0.5**	**336.5**
1998	0.3	4.9	2.0	130	9.1	16.4	9.5	0.3	75.5	0.4	2.1	0.6	17.0	0.7	0.7	**269.5**	5.6	0.2	0				6	**11.8**	19.4	**19.4**	0.4		0.7	0.4	**1.5**	3.0	38.4	2.0	0.0	**43.4**	0.1	0.4	**0.5**	**346.1**
1997	0.06	2.0	3.5	141.3	8.1	15.0	9.4	0.3	74.3	0.3	2.2	0.6	18.5	0.6	0.4	**276.4**	9.2	1.4					2	**12.6**	16.8	**16.8**	0.1		0.5	0.2	**0.8**	1.2	34.4	1.7	8.2	**45.5**	0.9	0.4	**1.3**	**353.4**
1996	0.1	1.5	2.8	105	6.5	24.9	9.5	0.3	72.8	0.1	1.9	0.5	15.7	0.7	0.3	**242.3**	12.9	1.4						**14.3**	14.6	**14.6**	0.2		1.2	0.4	**1.8**	1.2	20.0	1.3	8.2	**30.7**	0.2	0.2	**0.4**	**304.1**
1995		0.8	2.3	41.8	3.2	15.4	5.7	0.2	70.3		1.4	0.2	12.3	0.6	0.25	**154.2**	3.2	2.2					2.0	**7.4**	7.5	**7.5**	0.2		3.0	2.7	**5.9**		38.0	1.0	3.8	**42.8**				**217.8**
1994		0.5	1.7	8.8	1.6	9.7	4.5		55.0		1.4	0.2	4.9	1.0	0.2	**89.3**	2.3	2.2						**4.5**	6.0	**6.0**							8.0	0.9	3.8	**12.7**				**112.4**
1993		0.3		1.2	0.5	5.2	2.6		51.0		1.5	0.1	2.5	1.2	0.2	**66.0**	1.4	1.5						**2.9**	2.5	**2.5**							23.9	0.6	1.0	**25.5**				**96.9**
1992		0.4		0.2	0.1	2.6	1.6		38.0		4.0		1.9	2.5	0.2	**51.3**	0.5	0.7						**1.3**	0.8	**0.8**							18.1	0.6	2.0	**20.7**				**74.0**
1991		0.1		0.1		1.0	1.0		19.2		4.0		1.5	0.7	0.2	**27.5**	0.2							**0.2**	0.3	**0.3**							7.9	0.2	3.1	**11.2**				**39.2**
1990						0.1	0.1		9.0		4.0		0.6	0.6	0.2	**14.4**																	2.6	0.1	2.0	**4.6**				**19.0**
1989									0.8		4.0		0.4	0.2		**5.4**																	0.9		1.0	**1.9**				**7.3**

Legend:

1) DECO/ILO activities, but available information is not MEPI conform
2) Countries with ongoing activities, but not supervised in 2000 (sleeping projects)
3) no MEPI information available
4) data according to DECO Evaluation 5/1998
5) no data available; assumption

V ANNEXES

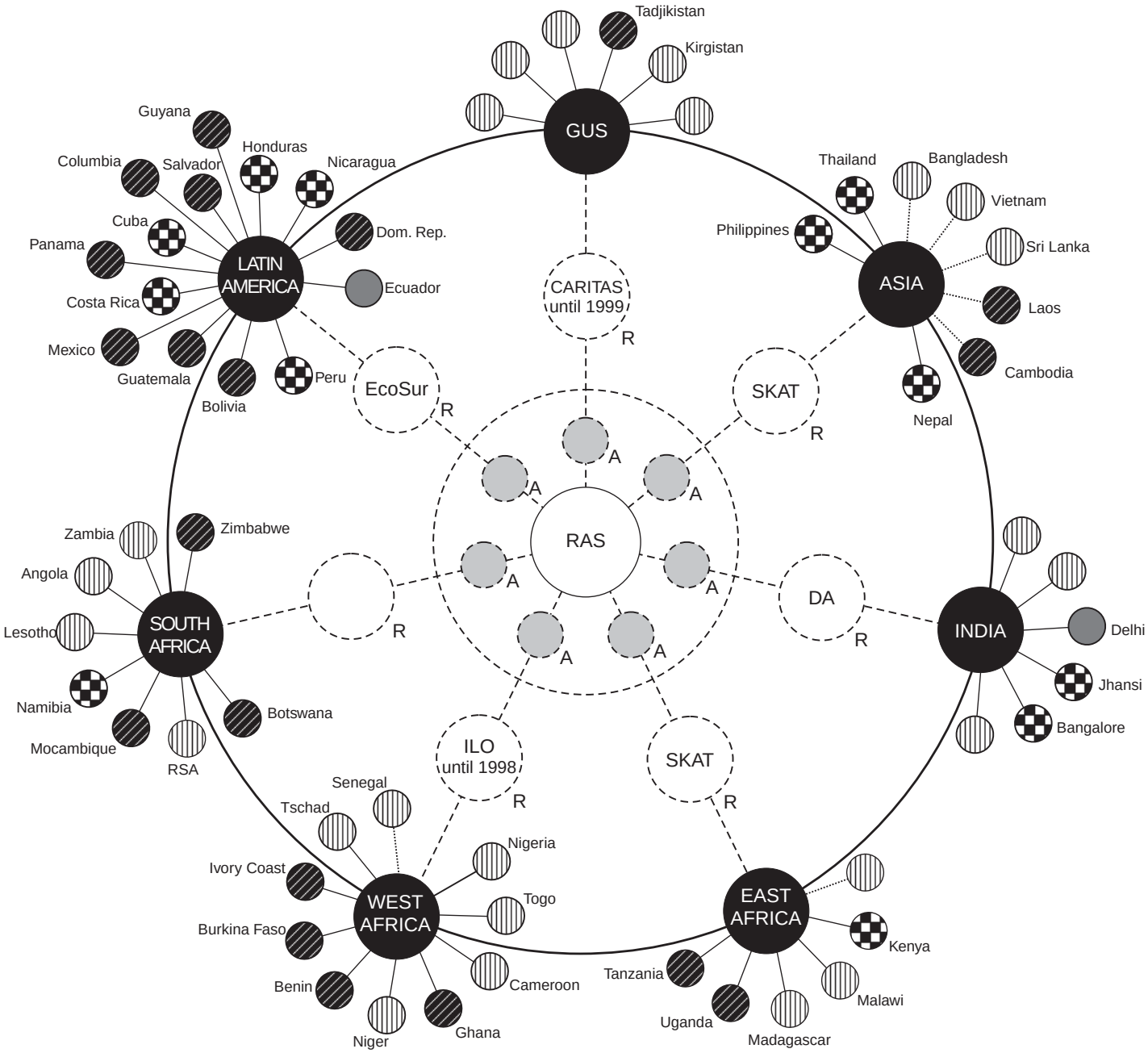
Annex 1

Abbreviations / Acronyms

ANNO	MCR Equipment Producer, Ghana
ApproTEC	Appropriate Technologies for Enterprise Creation, Kenya
AProCon	Asian Project Consultancy, Nepal
basin	Building Advisory Service Information Network, Network Partner of RAS
BKF	Bureau for Knowledge and Finance, Netherlands
BMP	Building Materials Project
CARITAS	Swiss NGO
CECAT	Centro de Estudios de Construcción y Arquitectura Tropical, Cuba
CVBT	Centre for Vocational Building Technology
DA	Development Alternatives, India
GIHOC	MCR Equipment Producer, Ghana
HABITECH	Research and Development of Housing Technology and Management, Subdivision of Asian Institute of Technology, Thailand
ILO/DECO	International Labour Office / Development of Construction Enterprises Producing Local Building Materials, Geneva
INTEP	Integrale Planung, Energie, Umwelt, Architektur, Switzerland
MCR	Micro Concrete Roofing
MEPI	Monitoring, Evaluation, Planning, Implementation
MSFI	Mindanao Shelter Foundation Institute, Philippines
ME	Micro Enterprises
NGO	Non Government Organisation
RAS	Roofing Advisory Service, Subdivision of SKAT
SDC	Swiss Development Cooperation
SKAT	Swiss Centre for Development Cooperation in Technology and Mgmt
SME	Small and Medium Entrepreneurs
TA	Technical Assistance
SOFONIAS	Asesoria en Desarrollo Integral, Nicaragua/Switzerland
SSPC	Support Service Providing Center

Annex 2

Global MCR Network



Projects / Producers

SSP

Regional Centers

Potential Countries or active Producers not linked to the RAS/MEPI Network

Advisors

Responsible Institutions

Advisors:

H. Müller / APROcon
D. Schwitter / SKAT
K. Rhyner / Sofonias
M. Klein
G. Wheeler / CVBT
S. Patara / DA
D. Mostrales / MSFI
M. Melendes / EcoSur

December 2000

Annex 3

RAS MEPI Network Partners

DA India (Development Alternatives) is an official member of the basin (Building Advisory Service and Information Network). DA is involved in sustainable building technology projects in India.

Development Alternatives
B-32 Tara Crescent, Qutab Institutional Area, New Delhi - 110 016, India
Tel + 91 11 696 79 38, +91 11 685 11 58
Fax + 91 11 686 60 31
Email tara@sdalt.ernet.in
Homepage: http://www.ecoucil.ar.cr/devalt

SKAT is the international RAS/MEPI co-ordinator and a member of basin. RAS has a mandate from SDC to facilitate MCR and SME activities at a global level.

SKAT
Vadianstrasse 42, CH-9000 St. Gallen, Switzerland
Tel + 41 71 228 54 54
Fax + 41 71 288 54 55
Email info@skat.ch
Homepage http://www.skat.ch

Caritas is involved in MCR technology dissemination in the Southern countries of the GIS (ex. USSR)

CARITAS
Postfach, CH-6002 Luzern, Switzerland
Tel + 41 41 419 22 22
Fax + 41 41 410 20 64
Email caritas@caritas.ch

ApproTEC is the RAS/MEPI representative for the East African region (Uganda, Tanzania and Kenya)

ApproTEC
P.O. Box 10973, Nairobi, Kenya
Tel and Fax: + 254 2 630 191
Email solomon@nbnet.co.ke

CVBT has taken over networking activities of the former "DECO countries" in the Mekong region (Thailand, Laos)

Centre for Vocational Building Technology
Udon Thani 41150, Thailand
Tel and Fax: + 66 1 220 1848
Email cvbt@yahoo.com

EcoSur is a body of experts with the mutual objective of sustainable development within the building construction sector. Latin American and Southern African countries with MCR production receive information and consulting support from EcoSur, if they apply for it.

EcoSur Latin America	EcoSouth	Grupo sofonias
Apdo 107	PO Box 30854	Schatzgutstrasse 9
Jinotepe	Windhoek	8750 Glarus
Nicaragua	Namibia	Switzerland
Ecosur@nicanet.com.ni	Sofonami@iwwn.com.na	sofonias@compuserve.com

Aprocon. Mr. Heini Müller from Asia Project Consultancy, Nepal, is a construction specialist involved in many building material programmes in South East Asia.

Aprocon (Asia Project Consultancy)
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Email heini@mos.com.np

Peter Hartmann is responsible for MEPI in the West African region
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Cotonou
Benin

Peter Hartmann
01 B.P. 394 Recette Principale
Cotonou
Benin
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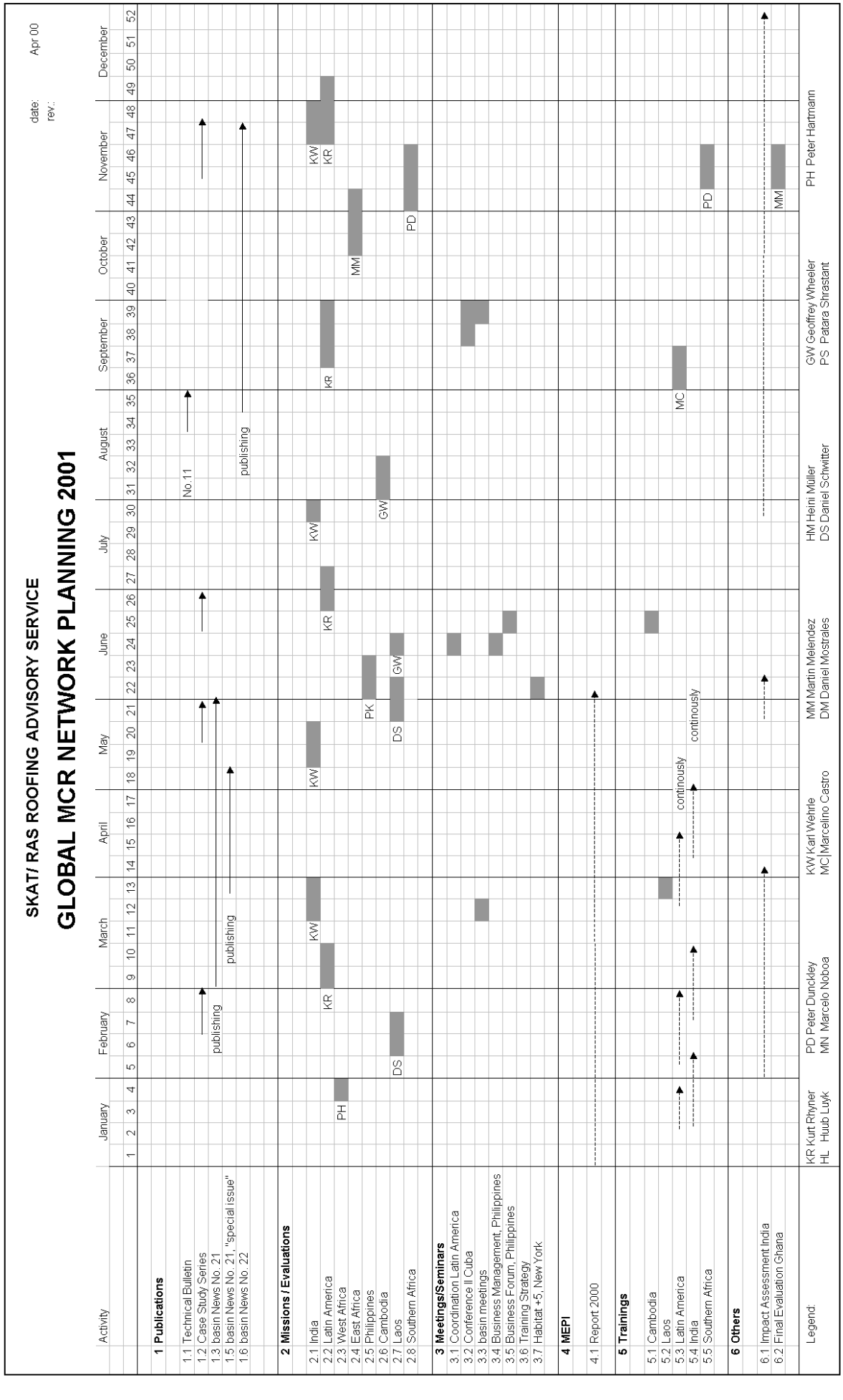
Annex 4

Equipment Producers selling locally, regionally or globally

Name	*Origin*	*Moulds*	*Tables*	*Selling*
ANNO	*Ghana*	*none*	*Electric motor, battery driven*	*regional*
GIHOC	*Ghana*	*hot formed plastic*	*not known*	*local*
APPRO-TECHNO	*Belgium*	*galvanised steel*	*electric motor*	*global*
DCS	*Nepal*	*none*	*pedal driven*	*local*
ECO-Systems	*Malawi*	*Wood*	*hand-driven*	*local*
HABITECH	*Thailand*	*plastic injected*	*electric motor*	*regional*
KOOLROOF	*Philippines*	*plastic injected*	*electric motor*	*regional*
MATECO	*Peru*	*none*	*electric motor*	*local*
MINT	*El Salvador*	*Concrete**	*not produced**	*Local**
PARRY	*UK*	*plastic injected*	*electric motor, hand driven*	*global*
TARA	*India*	*hot formed plastic*	*electric motor, hand driven*	*regional*
TEVI	*Cuba*	*plastic injected*	*electric motor*	*global*
TEJACRETO	*Peru*	*hot formed plastic*	*electric motor*	*local*
MAKIGA	*Kenya*	*concrete, fibre-glass, GI, etc.*	*battery or pedal driven*	*regional*

**** no info for Report 2000***

Annex 5


SKAT/ RAS ROOFING ADVISORY SERVICE
GLOBAL MCR NETWORK PLANNING 2001
date: Apr 00
rev.:
Activity
January
February
March
April
May
June
July
August
September
October
November
December
1 Publications
1.1 Technical Bulletin
1.2 Case Study Series
1.3 basin News No. 21
1.5 basin News No. 21, "special issue"
1.6 basin News No. 22
publishing
No.11
2 Missions / Evaluations
2.1 India
2.2 Latin America
2.3 West Africa
2.4 East Africa
2.5 Philippines
2.6 Cambodia
2.7 Laos
2.8 Southern Africa
KW
KR
PH
PK
DS
GW
MM
PD
3 Meetings/Seminars
3.1 Coordination Latin America
3.2 Conference II Cuba
3.3 basin meetings
3.4 Business Management, Philippines
3.5 Business Forum, Philippines
3.6 Training Strategy
3.7 Habitat +5, New York
4 MEPI
4.1 Report 2000
5 Trainings
5.1 Cambodia
5.2 Laos
5.3 Latin America
5.4 India
5.5 Southern Africa
continously
MC
6 Others
6.1 Impact Assessment India
6.2 Final Evaluation Ghana
Legend:
KR Kurt Rhyner
HL Huub Luyk
PD Peter Dunckley
MN Marcelo Noboa
KW Karl Wehrle
MC Marcelino Castro
MM Martin Melendez
DM Daniel Mostrales
HM Heini Müller
DS Daniel Schwitter
GW Geoffrey Wheeler
PS Patara Shrastant
PH Peter Hartmann

Annex 6

Selection of the accredited journals, leaflets, guides, posters and manuals

Country / Region	*Name of publication*	*Frequency of publication*	*Available at*
Philippines	***MCR Network Philippines***	*quarterly*	*Daniel S. Mostrales* *Mindanao Shelter Foundation, Inc.* *9200 Iligan City, Philippines* *e-mail: dsm@ccl.msuiit.edu.ph*
India	***Development Alternatives Newsletter***	*monthly*	*Development Alternatives* *Tara Crescent, Qutab Institutional Area,* *New Delhi-110 016, India* *e-mail: tara@sdalt.ernet.in* *Http://www.ecouncil.ac.cr/devalt*
Thailand	***Working Together***	*quarterly*	*Centre for Vocational Building Technology* *Udon Thani 41150, Thailand* *e-mail: stevdmeu@loxinfo.co.th*
Switzerland	***EcoSouth*** *(Engl. edition)*	*quarterly*	*Grupo Sofonias* *Schatzgutstr. 9, 8750 Glarus* *Switzerland* *e-mail: sofonias@compuserve.com*
Nicaragua	***EcoSur*** *(Span. edition)*	*quarterly*	*EcoSur* *Apdo 107, Jinotepe, Nicaragua* *e-mail: Ecosur@nicanet.com.ni* *Http://www.ecosur.org*
global	***basin news***	*half yearly*	*SKAT* *Vadianstr.42* *9000 St. Gallen, Switzerland* *e-mail info@skat.ch* *Http://www.skat.ch*

The **MCR Toolkit Series** provides the entire range of know-how required for producing and selling MCR Technology. It addresses all technical, economic, organisational and marketing aspects. The MCR Toolkit Overview lists below the materials available in the series and shows how the series is structured.

Ele-ment No	**Name**	**Language**			**Published**
		E	F	S	
1	National MCR Centre Guide	X			
2	Feasibility and Market Study Guide	X			1989, rev. 99
3	Teaching FCR/MCR Technology	X			1994
4	Standarts Guidelines	X	X		1992
10	The Basics of Concrete Roofing Elements	X	X	X	1993
11	Case Reports	X			
12	Product Information	X			1997
13	Promotion Material Kit	X			
14	FCR Video	X			
20	Workshop and Equipment	X			1997
21	Production and Operations Management	X			1997
22	Production Guide	X	X	X	1992
23	Quality Control Guidelines	X	X	X	1991
24	Roof Structure Guide	X	X	X	1995
25	Roof Cover Guide	X	X		1993
27	Equipment Producers Guide	X			1994
29	Roof Truss Guide	X			1998
30	Business Administration, Basic Skills Guide	X			1994
31	Marketing and Selling Guide	X			1995

The whole set of published **Technical Bulletins** contains now:

TB01	FCR/MCR Sheet: Yes or No
TB02	Brittleness of FCR and MCR Tiles
TB03	Fibroconcrete Roofing or Microconcrete Roofing
TB04	Sand Quality for MCR Tiles
TB05	FCR/MCR Alignment Tool
TB06	Roofing Systems compared to ecological criteria
TB07	Limits of Application of MCR
TB08	Appropriate Mix Design for MCR tiles
TB10	Glazing for Concrete Tiles
TB12	Accessory Roof Tiles for MCR

Further information on sector specific dissemination is done via SKAT or basin Website (http.//www.skat.ch resp. http//www.gtz.basin. de), CD-ROM, and videos.

SKAT/RAS, MSFI Philippines, DA India and EcoSur are maintaining their **Question and Answer Service** where several hundred enquiries on MCR were answered in 2000.