

EXTERNAL EVALUATION – SHORT REPORT

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Support in Strengthening Regional Cooperation and Integration in the Field of Quality Infrastructure

Country | Region: SAARC region
(Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka)

Project number: 95084
Implementation period: March 2013 – March 2017

Executing agency: SAARC Secretariat
Implementing partner: SARSO

PTB | Working group: Q. 52
PTB | Project coordinator: Daniel Böhme and Dr. Christian Stärz

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This is an independent evaluation. The contents represent the view of the evaluator and cannot be taken to reflect the views of PTB.

List of abbreviations

AB	Accreditation Body
APLAC	Asian Pacific Laboratory Accreditation Cooperation
BSTI	Bangladesh Standards and Testing Institution
CAB	Conformity Assessment Bodies
EQM	Export Quality Management
GB	Governing Board
GIZ	Gesellschaft für Internationale Zusammenarbeit
ILAC	International Laboratory Accreditation Association
ILC	Inter Laboratory Comparison
iSTE	Intermittend Short Term Expert
LDC	Least Developed Countries
MARCA	Multilateral Agreement on Recognition of Conformity Assessment
MCM	Metrology Coordination Meeting
MoU	Memorandum of Understanding
MUSSD	Measurement Units, Standards and Services Department (Sri Lanka)
NABCB	National Accreditation Board for Certification Bodies
NAFP	National Accreditation Focal Point
NABL	National Accreditation Board for Testing and Calibration Laboratories
NMI	National Metrology Institute

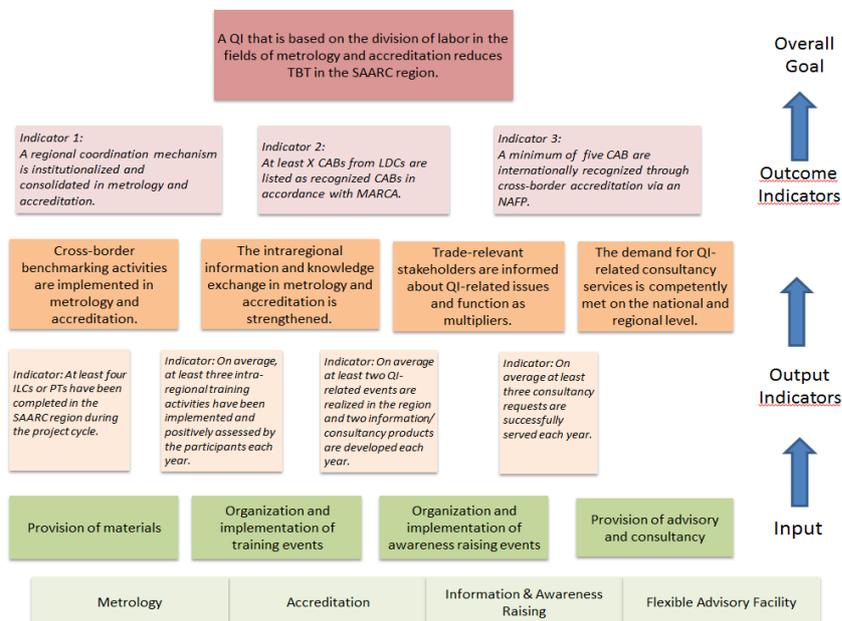
NPL	National Physical Laboratory
NQP	National Quality Policy
PC	Project Coordinator
PT	Proficiency Test
PTB	Physikalisch Technische Bundesanstalt
QI	Quality Infrastructure
SAA	SAARC Accreditation Association
SAARC	South Asian Association for Regional Cooperation
SARSO	South Asian Regional Standards Organization
SB	Standards Body
SEGA	SAARC Expert Group on Accreditation
SME	Small and Medium Enterprises
STE	Short Term Expert
TBT	Technical Barriers to Trade
ToT	Training of Trainers
TPN	Trade Promotion Network

1. Project Description

The project under assessment builds upon its predecessor that was implemented between January 2010 and March 2013. The predecessor focused on initiating network structures between less and more advanced national Quality Infrastructure (QI) institutions in SAARC. The latter comprise partner institutions, particularly in India, which were enabled to act as regional network partners and QI-service providers. On the basis of the experiences and results of its predecessor, the current project aimed at reducing technical barriers to trade (TBT) by further supporting the development of a regional QI that is based on a division of labor between QI institutions in the SAARC region.

According to the project logic graphically outlined in Figure 1, this is the overall goal of the project. To achieve this overall goal (see Figure 1), PTB provided technical and financial support through four project components: metrology, accreditation, information and awareness raising, as well as a flexible advisory facility. Each component consisted of a set of measures ranging from provision of materials, organization and implementation of training and awareness raising events, as well as the provision of advisory and consultancy services. With the outlined measures PTB aimed to realize cross-border benchmarking activities in the region, strengthen the information and knowledge exchange among National Metrology Institutes (NMIs) and Accreditation Bodies (ABs), inform trade relevant stakeholders about QI related issues and provide consultancy services to national and regional QI institutions.

Figure 1: Project Logic



Source: own illustration based on the table in Annex 3 (main report) of project proposal to BMZ (DO 49¹, translated from German into English by the author).

¹ A list of all documents referred to is provided in Annex 1

The project targeted professional and management staff of national QI-institutions as well as ministries relevant to the QI-system as intermediaries. The ultimate target groups of the project comprised all economic actors who benefit from improved QI-services such as industry and trade, small and medium enterprises (SME), consumers and the private and public sector.

The political partner of the project was the SAARC Secretariat in Kathmandu/ Nepal. Its Economic, Trade and Finance Division collaborated with the PTB in the field of QI. Implementing partners have been national professional institutions in the fields of metrology and accreditation as well as standards. According to DO 45, the idea was also to support leading partners in the region to become regional network partners for other institutions from least developed countries (LDCs) to avoid their marginalization.

The cross-cutting component on information and awareness-raising of the SAARC-PTB project has been connected to a project by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in the following way: The GIZ project aimed to establish intra-regional trade capacities in the SAARC region by supporting the SAARC Trade Promotion Network (TPN). While the SAARC TPN mainly consisted of trade chambers and associations, the PTB focused its support on governmental actors as well as public and private QI-service providers. However, the SAARC-TPN project has initiated a working group (WG) on QI. This working group represents an interface between the two projects.

Besides the support of the WG QI, PTB also provided further inputs which are not outlined in the original project logic depicted in Figure 1. E.g. logistical and organizational support of regular professional knowledge exchange events (Regional Metrology Coordination Meetings, SEGA Meetings). Also the measures which have been taken by means of the flexible advisory facility (e.g. capacity building at SARSO, support for National Accreditation Focal Points (NAFPs), etc.) could, due to their heterogeneity, not be included into the project logic. Therefore, the author does not fully agree with the defined project logic and indicators. Reasons and suggestions on improvement are outlined in Chapter 6 and Chapter 7 of the main evaluation report².

2. Assessment of the project

The evaluation followed a theory-based approach and a mixed-method approach was applied, combining various methods of data collection³ and analysis.

Whenever possible data was triangulated.

Interviews were conducted with PTB staff and several representatives from the different stakeholder groups (accreditation bodies and metrology institutions in SAARC, iSTE and STE, trainers etc.).

Also an online-survey with participants of training and awareness raising events was implemented. The purpose of the online-survey was to provide empirical evidence about the

² Whenever a Chapter or Annex is mentioned the author refers to the main report

³ Data collection tools (i.e. online survey questionnaire and interview guideline) can be found in Annex 1

impacts and relevance of these activities.

The sample of all stakeholders to be interviewed was set up in consultation with PTB staff. The aim was to capture the perspective of all relevant stakeholder groups. Due to the high number of participants in awareness raising events and trainings their opinions have been gathered by means of the online survey. However, in case of the BSTI trainees during the field trip the opportunity to interview some of them in person was appreciated.

Once the data collection was accomplished, the data analysis started with the aggregation of the information from the different instruments and sources along the evaluation questions, followed by the actual qualitative data analysis in MAXQDA and the quantitative data analysis in SPSS. The results of the analysis are compiled in this report, which will be presented and discussed during a final workshop at PTB Braunschweig on January 25th 2017.

The data basis comprises a total of 30 qualitative expert interviews (see interviewee list in Annex 1, main report) with the above mentioned stakeholder groups, at least 60 documents (see list in Annex 1, main report), and 70 online questionnaires from participants of SAARC-PTB training and awareness raising activities.

With regard to the technical trainings as well as the awareness raising events, the evaluation team was not able to conduct a full population survey since the e-mail addresses of all former participants were not available. In total 191 e-mail addresses have been provided by PTB of which 131 persons participated in training activities (standards, accreditation and metrology) and 60 in awareness raising events. Out of the 191 participants that were invited to take part in the survey, a total of 70 filled out the questionnaire.

Hence, the number of filled-out questionnaires corresponds to a 36 percent net return rate. Only individuals that work in either metrology, standards or accreditation were invited to participate in technical trainings within the context of the program (n=43). Thus their approximate⁴ response rate corresponds to 32.8 percent. All other participants could only have participated in awareness raising events (n=14). Hence, their estimated response rate amounts to 23.3 per cent.

Although the response rate is acceptable, it has to be beard in mind that a full population survey was not possible which is why generalizability is limited and results can only be seen as an approximation.

The documents made available to the CEval evaluators provided useful information on the implementation of the project activities during the last four years. The mission reports of iSTE and STE even include assessments of the development in their responsible fields. Also, the interviewees provided detailed information and did not hesitate to give frank feedback.

However, concerning the interviews and partly also the mission reports a clear limitation is posed by the fact that most of the people who served as information sources have not been involved in the project for approximately more than two years. Therefore, they were not able to give detailed information about the development for all four years of the actual project phase.

⁴ The exact return rate for each workfield could not be calculated since it was not possible to determine the exact number of survey participants from the different workfields because out of 70 cases available for analysis, 13 cases were missing data on the respective work field of the survey participants (e.g. because the survey participants chose not to answer that question or because they terminated the questionnaire at an earlier stage).

Hence, and although the evaluation team made strong efforts to include as much information as possible on the earlier stage of the project cycle, the evaluation is necessarily focused more on the last two years of the project phase.

2.1 Status of the change process

Relevance

Data analysis revealed that the objectives of the PTB-SAARC project match the objectives of the SAARC Charter and of the Asia Concept, that is, the objectives of both the regional and German partners. Furthermore, the majority of the applied instruments and measures are to a large extent sufficiently adapted to the capacity and needs of the partners and thus, considered relevant. Only concerning the support of developing regional standards, preparatory steps are considered to be missing. Furthermore, trainings are only relevant for a part of the beneficiaries. Further improvement of the training component in metrology is therefore necessary (see recommendations).

The overall objective of the project – namely fostering a regionally coordinated QI in SAARC to reduce TBT – while being relevant, is not yet fully achieved (see effectiveness). It thus continues to be a valid objective. However, and as will also be substantiated further on, PTB support in the region has had several positive effects and impacts which provide a basis to achieve this goal in the near to middle future.

The DAC-criterion relevance is rated 2.

Effectiveness

While not all output indicators could fully be achieved within this project phase, the defined outcome indicators (except for one, where an assessment was not possible) were fully achieved. Thus, when taking the outcome indicators as defined by PTB in the planning phase of the project as the sole standard against which to assess the overall goal achievement, the conclusion would be that the outcome has been fully achieved.

However, in case of the project under evaluation, the achievement of the outcome indicators cannot be easily interpreted in that way. This is because from the evaluator's point of view, the outcome indicators defined for the SAARC-PTB project are not suitable to properly measure the achievement of the overall outcome goal. On the one hand, because a part of the outcome formulation more properly addresses the impact level, on the other hand, because the indicators even taken together do not capture the essence of what they are supposed to measure. Therefore, to still come to a conclusion regarding the achievement of the overall goal, it will be necessary to first get an overview of the achieved impacts.

The DAC-criterion effectiveness is rated 2.

Impact

The online survey revealed that the newly acquired knowledge through trainings or awareness raising events has been shared by nearly all participants in the past. However, data cannot be considered representative. Furthermore, qualitative data showed that the extent to which the newly gained knowledge is shared highly varies among the institutions.

Overall, within the SAARC-PTB project, the following impacts have been identified. PTB contributed to the preparation of SARSO to cope with the challenges of harmonizing standards in the region by increasing capacity and strengthening SARSO's role and hence, its acceptance in the region. It fostered the regional QI through the establishment of NAFPs in Nepal and Bhutan and caused a better environment for communication by supporting regular exchange between the QI institutions. This exchange also was highly important for the initiation of the development from SEGA into SAA and the revision of MARCA.

Although, no strong evidence could be found to quantitatively prove the impact of the awareness raising activities, there is great consent among the interviewees that the activities do have a positive impact. All interviewees reported a higher demand of QI services in their countries.

Especially the EQM seminars were considered to be very successful. With the inclusion of the WG QI into the project, furthermore, the inclusion of a missing stakeholder group has taken place.

Another important impact is the increased financial support for some QI institutions from their Governments and the motivation of QI actors to get involved into political processes.

It can be concluded that several important impacts have been achieved which, according to the interviewees, will contribute to a reduction of TBT. While there is proof that a QI based on division of labor is developing, no valid data proving a reduction of TBT could be identified. Hence, it cannot be concluded that the overall goal has been achieved. According to the interviewees this can be explained by the long time it takes to convince key actors and furthermore, by the long time political measures take.

The DAC-criterion impact is rated 2.

Efficiency

Although a comparative cost-efficiency analysis was not possible with the available data, there is substantial evidence that PTB implemented the project efficiently. Nearly all defined indicators were achieved by the end of the project cycle. Furthermore, a congruency of the amounts spent and the number of realized activities could be detected, surpassing or going below the planned budget always happened in a reasonable way and a dynamic spending pattern could be identified. While trainings and meetings showed potential for improvement in terms of efficiency, the consultancy visits' efficiency was complimented by all interviewed stakeholders. If possible, they were efficiently combined with other activities. In accreditation this refers especially to the SEGA meetings or awareness raising events.

Since metrology and accreditation present different preconditions for collaboration in SAARC and accreditation is closer related to the overall goal of reducing TBT, exceeding the planned budget in accreditation but not neglecting metrology at the same time benefits the achievement of the overall goal und can thus, be considered as efficient. Although there are some hints where PTB could still improve efficiency, e.g. the location of the meetings or the physical presence of the SAARC Secretariat, it has also to be considered that these are political decisions so that all in all the DAC-criterion efficiency is rated 2.

Sustainability

The sustainability of the effects and impacts of the project are to a large extent affected by

bureaucratic issues and the personal commitment of people involved in the project since both issues cause personnel fluctuations and the delay of processes. Most of the effects and impacts achieved cannot be expected to be sustainable yet. However, concerning some developments, mostly the ones in accreditation, nearly all interviewees are convinced that sustainability can be achieved in the near future provided that there is further support from PTB for a next project phase, and given the necessary political will in the region.

The DAC-criterion sustainability is rated 2.

2.2 Success factors for the observed results and change processes

Strategy

Under the first success factor – strategy – it will be assessed whether PTB and the lead executing agency (in this case the SAARC secretariat) had a thorough and common understanding of the impacts that were to be achieved by the project and also whether the project partners knew what the project was aiming at. Furthermore, it targets the fit of the project and its goals into the development strategy of SAARC as well as the fit of the partners to achieve the defined goals. Lastly, it will also be examined if the implemented activities were adequately coordinated with the activities of other donors.

Consciousness about intended impacts: Although the impacts which were to be achieved with the help of the project are not precisely outlined in the project logic (see Chapter 6 for details), during the interviews with PTB staff and the representative of the SAARC Secretariat it got very clear that they knew precisely what they strove for. Regarding the project partners, their understanding of the project was often limited to the project component affecting their particular workfield. Especially during the MCM it turned out that the partners were not fully aware of the overall goal of the project. Although the project coordinator explained all four “threads” of the project during his introductory presentation in the MCM, it turned out during the interviews, that for the metrologists, the ultimate goal was not primarily contributing to a reduction of TBT but rather, their main focus was the further development of their NMIs.

Appropriateness of project goals and partners: Formally the lead executing agency of the project was the SAARC secretariat. However, implementation and organization of the activities have been gradually been transferred to SARSO. With the SAARC Charter, the SAARC Secretariat disposes of an own development strategy (in this case not national but regional). Since the main task of SARSO is the harmonization of standards, it fits the contents of the SAARC Charter and thus the regional development strategy. Also the project with its defined goals fits the SAARC Charter (as has been outlined in Chapter 4.2.1).

The SAARC Secretariat has only scarce personnel resources which is why it has gradually transferred the tasks within the project towards SARSO. As a consequence, it has been considered whether to directly sign an Agreement with SARSO in addition to the existing MoU with the SAARC secretariat in case of a next project phase.

According to several interviews, SARSO is a well interconnected, young and very dynamic institution. Furthermore, it has proven its capability to manage the necessary organizational processes within the project as a specialized agency of the SAARC Secretariat. However, it still is a SB. As has been outlined in Chapter 4.2.3 () possible conflicts could occur in the

future if SARSO continues to play the role of the lead executing agency.

Other than that, the project partners fitted very well. Ever since the adoption of the WG QI, also the private sector representatives have been included into the project. This stakeholder group has been missing from the project's architecture before. According to all partners, this group is considered really important to effectively reduce TBT.

Other donors: The activities have been fully coordinated with the activities of other donors as has been outlined in Chapter 4.2.1 ().

It is out of PTB's direct sphere of influence to reduce personnel fluctuations in the partner organizations. Therefore this success factor could not be achieved fully. However, there are several measures which PTB could take to improve the project understanding of the partners (see recommendations).

Cooperation

The second success factor targets the question of cooperation and therefore sums up if the lead executing agency and the project partners have been sufficiently involved in the planning process. Furthermore, it is examined how well the partners knew their role in the project and whether they sufficiently engaged in networking and communicating with all other project partners. Lastly, the exploitation of synergies with the activities of other implementing organizations will be assessed.

Participatory planning approach: As has already been outlined, the SEGA meetings and MCMs realized within the context of the project always also had the purpose of reviewing what activities had been realized after the last meeting and of discussing further needs. Given that the representative of the SAARC Secretariat, a representative of SARSO, as well as the project partners participated in those meetings, strategies and activities have obviously been coordinated together with the partners and the SAARC Secretariat. Also the roadmap workshop was realized together with SARSO to discuss further planning

This indicates that the partners and the lead executing agency have been involved into the planning of activities. However, the lacking understanding of the overall goal of some of project partners (see Chapter 4.2.1) indicates that the whole approach has not been planned in a completely participatory way.

Cooperative relationships to the private sector are still rare. The implementing partners all wished for more connection to the private sector. This stakeholder group was clearly largely missing from the process. With the inclusion of the WG QI into the project's proceedings, only recently it was tried to more thoroughly include the private sector.

Communication: By means of the implemented meetings and trainings the development of networks between the partner organizations has been promoted. Formal agreements and regular meetings provide evidence for the fact that such networks have indeed been established. Communication and coordination among the partners works well as long as it is physical. As became evident during the interviews, virtual communication results to be rather difficult. For example, it has often been reported that emails had been rarely replied and feedback to draft documents was often missing (see Chapter 4.2.3).

Synergies: Wherever synergies have been possible they have been exploited as has been outlined in Chapter 4.2.1 (). Additionally the uptake of the WG QI is a good example for synergy effects from a collaboration with another implementing organization in the region.

Roles: Since personnel fluctuations have been an issue throughout the entire project phase (see Chapter 4.2.5), not all of the partner institutions' representatives have been fully aware of their role in the project and the role of PTB. The lead executing agency (SAARC secretariat) definitely knew its role but as mentioned before has gradually transferred most of its responsibilities to one of the partner organizations (SARSO) which easily got used to that role.

Again, fluctuation and communication attitude of the project partners cannot directly be influenced by PTB. Although efforts have been made to further include the private sector into the project, more measures to improve the interaction between QI representatives and private sector are still necessary. However, this is constrained by the limited resources available within the project.

Steering structure

Under success factor three the project is assessed in terms of its steering structure, that is, who takes decisions, how these decisions are taken, and how they are implemented. Furthermore, also the monitoring of progress is addressed in this section.

Decision-making: To the best of the evaluator's knowledge, there is no joint steering committee. However the PCs appear to discuss further strategies intensively with the iSTEs and the leader of Q52. As could be observed during the field trip when the evaluator participated in the meetings, developed strategies have been presented and discussed with the partners such that upcoming or ongoing decision making processes have been made transparent to the partners. Hence, the participation in decision making by the partners is appreciated by PTB.

Thanks to the training and meeting activities, the project disposed of a coherent interactive structure.

In terms of the implementation of decisions, and as reported before, in the beginning of the project phase there was not always compliance with the decisions (e.g. in SEGA) since nobody felt responsible for implementation. This positively changed over time; compliance has been increasing together with the increasing institutionalization of activities.

But still, as already mentioned before, virtual communication does not work properly among the partners. As has been brought up during the meetings, when it has been decided (in the meetings) to send documents or asked for feedback or comments on documents until a certain deadline, commitment towards and compliance with these decisions has been missing, even though SARSO has been sending reminders and has continuously been pushing to obtain the necessary information.

Monitoring: As became apparent during the meetings and as could be extracted from the annexes to the meeting reports (DO 1-4 and DO 13-16), timeframes and priorities are set and followed up on within all project activities. In accreditation, activities were monitored by SARSO that also offered to monitor metrology activities (see chapter 4.2.3,) and inclusively made strong efforts to collect the necessary information from the NMIs. However, to date this

is done by NPL India as the organization is involved in most activities in metrology. Since there are also some activities with other partners (e.g. study tour to Vietnam by ANSA), in which NPL India is not involved, these activities have not been included in the monitoring on metrology.

In terms of training and awareness raising activities, some monitoring is done by the help of feedback forms. However, those are only collected in metrology trainings and the EQM seminars. With a view to enhancing the overall project monitoring it should be discussed whether to regularly collect feedback forms also in accreditation trainings and awareness raising events on accreditation. Also after the SARSO workshops standardized questionnaires should be handed out. Since this is not done yet, decisions are only partly based on the monitoring data.

Processes

The success factor 'processes' assesses the processes of the project on two levels: On system level of the sector and on the level of internal management processes.

On system level, processes of developing the quality infrastructure have been identified and defined through the project interventions.

Within the development for NQP, National Addendums and the institutionalization of SEGA into SAA, responsibilities were defined. Concerning the development of capacities in organizations to establish competencies and provide services in quality infrastructure, PTB initiated several relevant processes for this sector. The demand for capacity building and the responsibility taken over by project partners shows that there is a general interest in developing more capacities. Facilitation of exchange and cooperation via the regular meetings was an important PTB contribution.

Nevertheless, it has already been mentioned that several processes within the partner organizations need to be improved to better contribute towards sustainability of the achieved impacts. E.g. the selection of training participants to increase the relevancy of trainings (see Chapter 4.2.1 and recommendations), the commitment towards the project by assuring that the same institutional representative can continuously participate in the meetings (see Chapter 4.2.5) and that he/she assures the dissemination of knowledge (see Chapter 4.2.3). Especially the change process of SARSO's structure should be heard in mind to avoid conflicts in the future (see Chapter 4.2.3 and recommendations).

Learning and innovation

The last success factor according to Capacity WORKS is about learning and innovation through knowledge management and adoption to changing conditions.

Knowledge management: Within this project, PTB engaged in active knowledge management by elaborating progress reports and the further development of EQM seminar learning material. This has been tested in Bangladesh and is planned to be used in other countries and regions within other PTB projects in the future. Furthermore, SARSO shared the meeting reports with the other partners such that also the ones who could not participate have been informed about the status of ongoing and future activities.

Also the iSTE and STE always handed in reports of their consultancy visits. According to the

interviews the close contact and hence, sharing of expertise highly contributed to learning of PTB staff. Furthermore, during the document analysis, it was clearly noted that the problems which came up in the mission or expert reports were tried to tackle as far as possible since they have been discussed at the next opportunity, e.g. during the next meeting. Furthermore, developments over time and references to past reports have been done. While the contact of the PCs and project partners with the iSTE has been more intense by the nature of the more permanent support, the STEs only did consultancy visits, reported and were then usually not informed about the further proceeding. This has been criticized by one STE. It would be appreciated if the STEs were included in the information loop even when it is not part of the STEs' contract to further accompany the project.

Adoption to changing conditions: As the progress reports outline, operational planning has always been adjusted to new developments and changing framework conditions. Needs have been discussed with the partners during the meeting activities and developments and risks have always been discussed within the progress reports. Consequently, new goals have been defined in the reports. The flexible advisory facility has been an important tool to achieve these goals. The fact that apart from the goals defined in the logical framework many other relevant goals have been realized proves the flexible adoption to new developments and changes. However, it also poses a challenge in terms of focusing efforts and resources to the goals initially defined for the project (see Chapter 6).

3. Learning processes and learning experience

In this chapter the major lessons learned will be outlined. While the first part briefly sums up the major lessons learned regarding the project activities and management, the second part takes care of the major lessons learned regarding the evaluation process.

Project activities and management

Throughout the project, the various kinds of **meetings** have proven to be important to discuss further activities and current developments together with PTB. They cannot be substituted by virtual communication because virtual communication does not work effectively (see Chapter 4.2.3 and Chapter 4.2.5). However, the effectiveness of the meetings has been reduced by fluctuating representatives from each country and the absence of high level management personnel who can actually take decisions (see Chapter 4.2.5). A mechanism to assure both continuity and the participation of decision makers should thus be introduced. Also a joint understanding of the whole program, not only the component relevant to the particular stakeholder group, has to be further fostered (see Chapter 4.3.1) such that the achievement of the overall goal is the main focus for all stakeholders (see recommendations for suggestions).

The **trainings** in accreditation have been assessed positively and they have been efficiently combined with meeting (SEGA) and awareness activities, and hence the participation of an international expert (see Chapter 4.2.4) which resulted to increase effectiveness of awareness raising (see Chapter 4.2.1). In metrology, trainings are considered to positively contribute to an increase in capacity, however, at the same time they are considered too short. Furthermore, training content and equipment has been criticized to be too sophisticated for weaker NMI trainees (see Chapter 4.2.1 and 4.2.3). Therefore, to assure the relevancy of the trainings, the partners' needs have to be defined more clearly and trainings need to be customized

accordingly (see recommendations for suggestions how).

The **awareness raising events** overall have been assessed positively as well. However, it has been criticized that there was no follow up event and that also in some events high level management staff had been missing. A further point of criticism was that private sector and regulators are not involved enough into the project (see Chapter 4.2.3). Hence, these issues would need to be tackled in the future such that the necessary change of behavior and hence the necessary courses of action (i.e. the implementation of laws and usage of QI services) take place. The awareness raising events have been reported to be highly cost and time intensive. Hence, the limited resources by PTB have to be kept in mind concerning this criticism.

The **support for SARSO** was highly appreciated by SARSO representatives. However, throughout the project phase it has become clear that it is necessary to bear in mind the actual role of SARSO as a standards body in order to avoid contributing to a conflict with SEGA (or SAA in the future) (see Chapter 4.2.3 for details).

Although the **project management** of PTB staff generally worked out well, it became evident throughout the evaluation that improvements could still be achieved by increasing the exchange between the responsible persons for the different components. Furthermore, within PTB Q.5 several working groups make use of tools and instruments developed, for example, in order to increase different stakeholders' awareness on QI issues (e.g. EQM, CALIDENA). While within the context of the evaluation no indications could be retrieved on the extent to which PTB-SAARC staff engaged in an exchange of experiences on those instruments with colleagues from their own or from other working groups, such an exchange could certainly be worthwhile. That way best practices could be adopted (e.g. feedback forms after trainings) and possible synergies could more easily be identified (e.g. necessity for exchange between SEGA and the metrologists concerning PT).

Most interviewees who actively participated in the project for several years stated that all past and current PCs managed the project very well. However, some reported that also fluctuations on the part of PTB staff hindered the processes. While personnel fluctuations cannot always be avoided, it is necessary to at least structure the transition process in a way that facilitates the take-up by new PTB staff (e.g. through a more detailed knowledge management, a period of transition).

Evaluation process

In the following, the major lessons learned during the evaluation process will be briefly outlined.

First of all it has to be mentioned that the **project matrix** developed by PTB has some shortcomings that affected both, the thorough planning of the project as well as its monitoring and evaluation. First of all, several core inputs of the project, like the full support of the different meetings, have not been included in the matrix at all. Furthermore, the flexible advisory facility is a black box within the project logic. On the one hand, it is a tool which allowed PTB to take up measures which could not have been foreseen to be needed and thus provided some level of flexibility in the implementation of the project. On the other hand, it has thus not been possible to clearly define subordinated targets and corresponding indicators. Hence, it was impossible to properly assess the effectiveness of these activities according to

the indicators defined in the project logic (for example, SARSO workshops/trainings, support for the NAFPs, etc.).

Furthermore, most of the project indicators are not defined in a specific, measurable, achievable, relevant and time-bound manner (SMART criteria). Additionally the indicators which have been defined on the outcome level are not directly connected to the overall goal (e.g. a regional coordination mechanism in metrology and accreditation does not yet indicate that there is a QI based on the division of labor and that TBT are reduced). Stated differently, the outcome indicators are not the most appropriate ones to properly indicate the changes that were intended to be achieved on that level.

The last criticism concerning the project logic is the overall goal itself. While the first part (QI based on division of labor in the fields of metrology and accreditation) is an appropriate outcome goal that lies within the direct purview of the project, the second part (reduced TBT in the SAARC region) is rather a possible consequence of the first part, and hence, more properly represents an intended impact. While the reduction of TBT has been placed on the outcome level within the project logic, no corresponding indicator has been defined in order to actually measure the contribution of the project on the reduction of TBT in the region.

A well designed and graphically outlined project matrix would have helped both to manage and steer the project as well as to evaluate it. . During the implementation of the project it would certainly have helped the partners and especially the fluctuating participants in the meetings to better grasp the planned activities as well as goals and intentions of the project. In view of the evaluation, a well founded project matrix would have facilitated an easier differentiation between effects and intended and unintended impacts of the project as well as the corresponding analysis.

In terms of the evaluation process, some further lessons learned shall be briefly outlined. Although the evaluator has undertaken a document analysis before the field visit, the **participation of the evaluator in the SEGA meeting and MCM** has been highly beneficial to the evaluation. By attentively following the introductory presentations of all present AB and NMI representatives, the evaluator could get more familiar with the project and especially the realized activities and needs of the partners as well as the complexity of QI issues in the region. Furthermore, in SEGA there was always the possibility to clarify technical questions with the iSTE and in the MCM and during the field trip to NPL India even a technical evaluator has been available for the clarification of technical uncertainties.

Furthermore, the participation in the meetings, including joint coffee and lunch breaks as well as some cultural activities positively contributed to build up trust with the interviewees. Furthermore, having the chance to personally interview the iSTE and several project partners from different countries was arranged cost efficiently. It was planned to realize two to three interviews per day while the SEGA meeting took place. Due to the limited number of planned interviews (9) and the duration of the SEGA meeting (4 days including a training and an awareness raising activity), these interviews could perfectly be arranged after the official part was over. However, if the meetings were shorter or more interviews had been planned, it would not be recommended to conduct the evaluation during the meeting process since one would have to ask the interviewees to leave the meeting for at least one hour or not participate in dinner or other planned activities which most probably would cause a more stressed interview situation. Although the MCM was only carried out within two days, this was not the case with the NPL representatives since participants from India could still be interviewed in

Delhi. However, most likely it would have been more cost efficient if the Indian participants could have stayed one day longer in Bhutan (where the MCM took place) to be interviewed by the evaluation team.

4. Recommendations

Having presented the major findings of this evaluation in the previous sections, this section will formulate a number of recommendations especially in view of possible future activities in the SAARC region. In case further support will be provided for another project phase, PTB should concentrate on working towards sustainability. This would specifically mean to assure that SEGA officially turns into SAA, NAFP Nepal gets established as a proper AB and more awareness is raised for the importance of QI generally and particularly in Bhutan to assure the demand for the NAFP. Support should also be particularly considered those QI institutions that are closest to achieving an advanced level of human and institutional capacity in order to build further knowledge partners in the region besides India. Subsequently, detailed recommendations will be given on how these developments could be achieved.

In doing so, recommendations for further activities in accreditation, awareness raising and metrology will be provided first and will be followed by recommendations concerning the improvement of the dissemination of knowledge and the meetings. After that, further activities with SARSO will also be targeted.

Apart from those project specific recommendations touching the various project components, this section will end with a set of recommendations which could help PTB more generally to improve on processes of project planning and especially monitoring and evaluation.

Recommendations for project team and project partners

In **accreditation**, it would first and foremost be important to support the firm establishment of the SAA. To that end and along the lines of how it is commonly practiced on a national level, it should be assured that the SAA reports to high level officials responsible for regional trade just as the ABs on the national level usually report to the Ministries of Industry or Trade (DO16). That way SAA would be established next to, and not under SARSO and hence, a clear separation between standards and accreditation could be maintained

Once SAA is established, collaboration among the ABs in the region would be very likely to continue. However, a joint assessor pool and a joint training concept should be established in order to support the continuity of regional collaboration in matters of accreditation. More advanced ABs could partner up with weaker ABs from the region and carry out assessments or trainings together. These activities would sustain collaboration among the ABs and at the same time increase capacities of the weaker ABs.

To further increase awareness for accreditation in Bhutan, it is recommended to support “discount offers” of the NAFP Bhutan. If PTB covered a part of the cost for the accreditation process, NAFP could offer the accreditation at a lower price. That way “pioneer CABs” could be gained as good examples for others who doubt that the investment for accreditation is worth its price and a snowball effect could possibly be achieved (see Chapter 4.2.3).

Increased **awareness** of QI matters among the users of QI services could be achieved more easily if the needs of potential customers were known. A survey to find out more about these needs could be conducted. Afterwards, participants from a specific sector could be invited to a customized EQM seminar. Another option would be to make use of PTB instruments that are

already in place and could be put to value in order to find out precisely what the needs, for example, of a particular value chain in a country or region are and that are at the same time an effective tool to increase awareness.

Through a train-the-trainer approach EQM seminars could be realized cost-efficiently in several countries in the region. A core group could be trained which afterwards customizes the training materials according to the specific local sector needs. This should be done in close collaboration with a respective private sector representative. Hence, the WG QI could be integrated into that process. Furthermore, seminars on different levels (i.e. basic and more advanced) should be developed such that only “small portions” of information are provided at a time. Through follow up sessions basic knowledge could later on be consolidated and expanded.

With the help of the WG QI even “info points” in the chambers of commerce and industries could be established to provide a permanent possibility of information to the exporters directly. Based on demand, trained persons could offer first basic instructions how to take action in case there is interest in QI services. For example by providing helpful sources of information (i.e. websites, booklets, flyers, etc.) and making contact with the relevant QI institution in the country.

Finally, raising awareness on the political level could be improved by implementing short sessions in the relevant ministries. Additionally to the already existing awareness raising events in accreditation it should be tried to support meetings of QI representatives with secretaries of ministries directly. PTB as the German NMI and international development cooperation organization could thereby function as an intermediate and increase willingness to receive the QI representatives. These could also be personally invited to a further, more general, awareness raising event to directly follow up on them.

In doing all of the above, the combination of appointing both regional and international trainers should be maintained for the purposes of the awareness raising events, since this has proven to be successful (see Chapter 4.2.1).

To further foster the **establishment of another knowledge partner** in the region it should be considered to initiate a bilateral project with Bangladesh and exploit synergies. Bangladesh has a growing industry and is especially known for its textile industry. Standards, accreditation and metrology are highly relevant to this sector and bear high potential for positive consumer related and trade effects. As BAB as well as BSTI already dispose of good capacities, a bilateral project focusing on the textile industry could serve the purpose of building up another knowledge partner in the region within the SAARC-PTB project.

In **metrology** the technical level of SAARC countries can be generally divided into 3 groups :

- Advanced NMIs – have a wide range of technical capabilities, are able to train others and can provide primary standards traceability etc.
- Intermediate NMIs – have a sizable range of technical capabilities well suited to the industrial needs, have some self-sufficiency concerning their financial situation (e.g. BSTI or MUSSD) and enough technical knowledge and confidence to train others and are able to provide traceability as well as secondary measurement services
- Developing NMIs – need sizable financial and technical assistance to set up credible traceable measurement capabilities to meet industrial needs.

Apart from bringing all of them together regularly and only using the technical assistance of

the advanced NMIs, it should be considered to further strengthen the relation between intermediate and advanced NMIs as well as developing and intermediate NMIs, for example, through bilateral comparison activities (see following paragraph) or training partnerships. The advanced NMIs can support and train the intermediate NMIs on a one-to-one basis. While the intermediate NMIs can in turn provide similar support and training to developing NMIs. This practice could instill responsibility and accountability throughout all parties involved, encouraging self and mutual help mentality. Furthermore, during the interviews with representatives from metrology institutes it has been mentioned several times that motivation increases when advice is given by partners who have been in similar situations.

This approach does have several other advantages: virtual conversation might be less of a problem since only two parties have to get together. Hence, processes would probably be more cost efficient since personal meetings could at least in part be substituted by virtual ones. Furthermore, regional service partners would be strengthened in their role as knowledge brokers. Hence, more than one service partner (NPL India) would be available in the future and knowledge and capacities could be enhanced and harmonized faster.

However, NMI representatives from all kinds of regional NMIs should still come together from time to time so that they stay informed about the dynamics in the whole region and also have the opportunity for exchange with other actors in the region.

As has been demonstrated in this report (see Chapter 4.2.1), **ILC** activities are highly relevant for NMIs in the region. NMI staff can apply the knowledge which has been acquired through trainings, and collaboration between the NMIs is also fostered by these activities. However, in the past, only the same NMIs (see Chapter 4.2.2) have participated and logistical problems and delays have occurred.

Hence, in the future, it should be focused on getting the NMIs of the countries which have not yet participated in ILCs ready for participation, even though some of the advanced NMIs opt for participating in Asian Pacific Metrology Program (APMP) ILCs. To smooth the processes, it is recommendable to support the organization of bilateral ILCs between only 2 (neighboring) countries rather than regional ones. Provided that one of the weaker and one of the stronger NMIs are coupled for the ILC, this approach might be particularly effective for the weaker NMIs as the advanced NMIs can cater to the weaker NMI's individual needs and thus help it improve rather than to test competency during the developing stage. Laboratories can cost-efficiently practice to follow the protocol and thus are better prepared for a regional ILC which would be the next step. This may, however, only be organized if a few NMIs have already gained some experience through their participation in a bilateral comparison with an advanced NMI. Furthermore, such an approach could also help to reduce delays caused by lack of confidence in the participating NMIs or by following the set protocol.

To further reduce delay in ILCs, artifacts could be sent via a freight attendant to avoid custom problems. Another possibility would be to hand-carry the artifacts. The journey could be combined with an on-site training.⁵

To improve the **trainings in metrology** preparatory material should be sent in advance so

⁵ Another consideration would be to obtain an ATA Carnet for transportation of instruments. Most key comparisons organized by the Regional Metrology Organization (RMO) such as APMP utilize this mode of transportation for the travelling of measurement artifacts. Since not all SAARC countries have ATA Carnet arrangements, possibilities of the SAARC Secretariat enhancing the process should be examined.

that trainees could familiarize at least with the theoretical part of the training. Apart from that, virtual exchange with the other trainees and the trainer (e.g. a What's App group) should be facilitated to discuss possible questions and even clarify insecurities in advance. Furthermore, a test to be handed in a few months in advance could be introduced to make sure the knowledge level is sufficient to participate in the training and to avoid free-riders.

To increase effectiveness it should be considered to support fewer but longer trainings, as the relative brevity of the trainings has been an issue considered problematic during the previous project phase (see Chapter 4.2.1 and 4.2.3).

In terms of the training concept, it should be considered whether the trainings could be conceptualized as basic and follow up trainings. The first training would focus on building a more or less common level of knowledge, while the second training would then build upon the first training and deepen the trainees' knowledge. Furthermore, it should be a mixture of on-site training and training at another, more advanced NMI. Since the on-site training has been assessed as more effective by the participants but teachers cannot be freed from their jobs for more than five days, it should be started with a five day on-site training. The trainees who are considered ready to participate in another training by the trainer could then get a follow-up training at a more advanced NMI (e.g. for one month). On the one hand, that way the trainer him/herself could make sure that the capacity of the respective trainee is sufficiently high to go further. On the other hand, the trainee would have an incentive to study and actively engage in the on-site training knowing that an assessment would follow and be aware of the possibility to participate in an advanced training abroad. Furthermore, it should be considered to give an obligatory homework before the advanced training. That way the knowledge gained during the on-site training could be consolidated and directly applied. Also, through that homework the trainees would have to prove their motivation for the training abroad.

Another possibility to assure the motivation for the training abroad would be to introduce a written or oral examination or a cost sharing policy.

To attain some form of responsibility to strengthen the commitment of both, the individual staff and from the sending NMIs, trainings may be operated under a cost sharing model with PTB providing a larger percentage of the funds and the NMIs paying a smaller percentage.

To further foster the **dissemination of knowledge**, it should be discussed whether performance indicators covering knowledge dissemination activities for the staff sent for the trainings could be introduced by the NMIs and ABs (e.g. compile technical trip in a report, sharing of information via a short presentation or even training of other staff members).

Furthermore, continuous independent learning should be a goal for all NMIs and ABs. They should be encouraged to use freely accessible training materials and publications with a view to reducing their reliance on external training measures. Technical materials may be compiled by established NMIs and ABs (e.g. PTB, NPL, NABCB, NABL India or other regional partners) and made available to all SAARC NMIs and ABs through the internet or a joint extranet. A mailing list informing about newly uploaded material and offering the possibility to ask questions to the expert community could be established. Additionally an alumni network of former trainees should be created to enhance the communication of the technical staff and build a better basis for collaboration on the institutional level

The **meetings** are required but not the purpose of the project. If the (south-south bilateral) contacts within the region are more intensified via training and comparison activities there may

not be the need to continue meeting annually. Since the ultimate goal is to reduce TBT, the focus should be on the improvement of awareness and manpower in QI. Hence, it is further proposed to reduce the MCM to three: one at the beginning of the project to set and agree on clear goals and objectives), one in the middle of the project to evaluate the effectiveness of the implementation according to the goals and objectives and to discuss how to proceed, and finally one at the end of the project to conclude the project with an assessment of goal achievement and proposals for future directions.

However for both, the MCM and the SEGA meetings, the continuity of participants and also the presence of decision makers should be assured. While in metrology the combination of a higher level management representative and a member of technical staff is recommended, SEGA might do with only one representative from the higher level management. The problem of lacking continuity and absence of decision makers has been discussed in both meetings. However, a further formalization is clearly necessary in order to actually resolve those issues. PTB should only cover the cost for persons who are designated to be there. To increase the chances that decision makers are available, SEGA and MCM should either be connected to other relevant meetings like ILAC, APLAC or APMP or take place in another time period. This is because according to the evaluation results, several Governments by principle do often not give permission for several closely tied travel activities since they suspect such travel activities to be less of business than a vacation trip.

During the interviews it turned out that especially AB representatives would welcome the exchange with NMI representatives, for example, to discuss proficiency testing (PT) programs. Several interviewees mentioned the need for intra-regional PT programs because no PT services are currently available. As a consequence, the demand in the region has to be covered by assessors from Australia and Europe which makes PT highly cost intensive. PTB should therefore think about supporting intra-regional PT programs. A further issue, predestinate for collaboration between metrology and accreditation is certified reference material (CRM). CRM is also needed to establish a good laboratory infrastructure. It could be started to create CRM in a few areas most relevant to the needs of their local industries e.g. hardness blocks, reference gas samples etc. Also the establishment of quality management systems for the NMIs could be a topic for joint discussion.

As can be seen, there are several points in which the exchange of NMIs and ABs in the region would be beneficial. Hence, it is recommended to organize the SEGA and MCM meetings in parallel, that is, at the same time in the same place but as separate meetings. That way an introductory session could be carried out together where both groups present their work and topics of discussion to the other group. Afterwards groups could be separated and once the necessary issues are discussed, half a day could consist of a joint meeting where the above mentioned issues are discussed. A final concluding session where both groups present their achievements and further action plans to the other group and one person presents the joint course of action to all could follow. Carrying out a meeting session together would furthermore, not only foster the exchange between the NMIs and ABs in the region but also give the PCs a chance to get a better overview of what is going on within the other project components. This could be helpful in terms of further coordination among the project's management staff since this mechanism is not optimized yet (see recommendations). Furthermore, the representative of the SAARC Secretariat could be invited (or even only be virtually connected) to the final session. As outlined in Chapter (4.2.4) there is no need for the representative to be present in both meetings at all times. However, the participation in a concluding session of both SEGA and MCM would serve the purpose to coordinate the

activities with the SAARC Secretariat and ask assistance if needed. Efficiency could further be increased by choosing countries in which meeting locations are comparably cheap.

Concerning the further **support of SARSO**, PTB should concentrate on accompanying SARSO to strengthen the awareness for regional standards on the political level and guide SARSO in the political dialogue to achieve that SAARC standards will be adopted as national standards. Therefore, it should be considered to contract an iSTE such that the “continuous push” which SARSO needs (see Chapter 4.2.3) is guaranteed. Once it is assured that the SAARC standards will actually be used, further support in developing the standards should be given such that they are in line with the ISO standards. SARSO by then would need further support in terms of institution building, for example, handling management processes (i.e. document and project management) since it is still a very young organization. The exchange with other regional standards organizations could be helpful in this regard. It could contribute to further improve SARSO’s work and especially the cooperation among the members. Since PTB cannot influence the legal framework conditions of SARSO (e.g. the composition of the SARSO GB), it should only support measures which strengthen SARSO as a standards body such that a contribution to further possible frictions with the establishment of SAA can be avoided (see Chapter 4.2.3).

General recommendations for Q.5

The first recommendation pertains to project planning and, more precisely, **results-based planning**. The project matrix PTB developed before the project started had several structural flaws from a monitoring and evaluation point of view (see Chapter 6).

Against that backdrop, it is first of all recommended to outline the project logic graphically and clearly define inputs, outputs, outcomes and impacts. By help of such an impact model it is much easier to understand the project’s logic, that is, how inputs are supposed to lead to outputs and how these outputs are then expected to contribute to the achievement of desired outcomes. The intervention logic can also be checked more easily for possible flaws, gaps or missing links, which can then be addressed. It is also important to update the matrix in reaction to important changes in the project’s logic. If additionally the planned inputs or outputs further inputs or outputs are provided within the process of the project, the project matrix should be updated. That way a clear structure of what outputs and outcomes should be achieved can be followed.

Furthermore, a clear idea of how the overall goal will be measured should exist. Therefore, the indicators should correspond to the goal and be adequate to actually measure the changes that are meant to be achieved. Furthermore, they should be defined according to the SMART criteria: Specific, Measurable, Achievable, Relevant and Time-bound.

Indicators should be defined on all levels (output, outcome and impact level). Developing the project matrix together with the partners and defining short-term and long-term goals together is highly recommended. The needs of the project partners can thus be included more thoroughly. Moreover, the partners can assess best, if the activities and goals defined are relevant and achievable. Furthermore, they can provide useful input concerning possible impacts and external factors since they know the local context best.

Within the joint process, it would be assured that project partners get more conscious about the project’s components and goals. This could be an activity carried out together in a joint meeting of metrologists and accreditation assessors and would have the advantage that the project matrix would already exist in the project’s working language (English). That way the

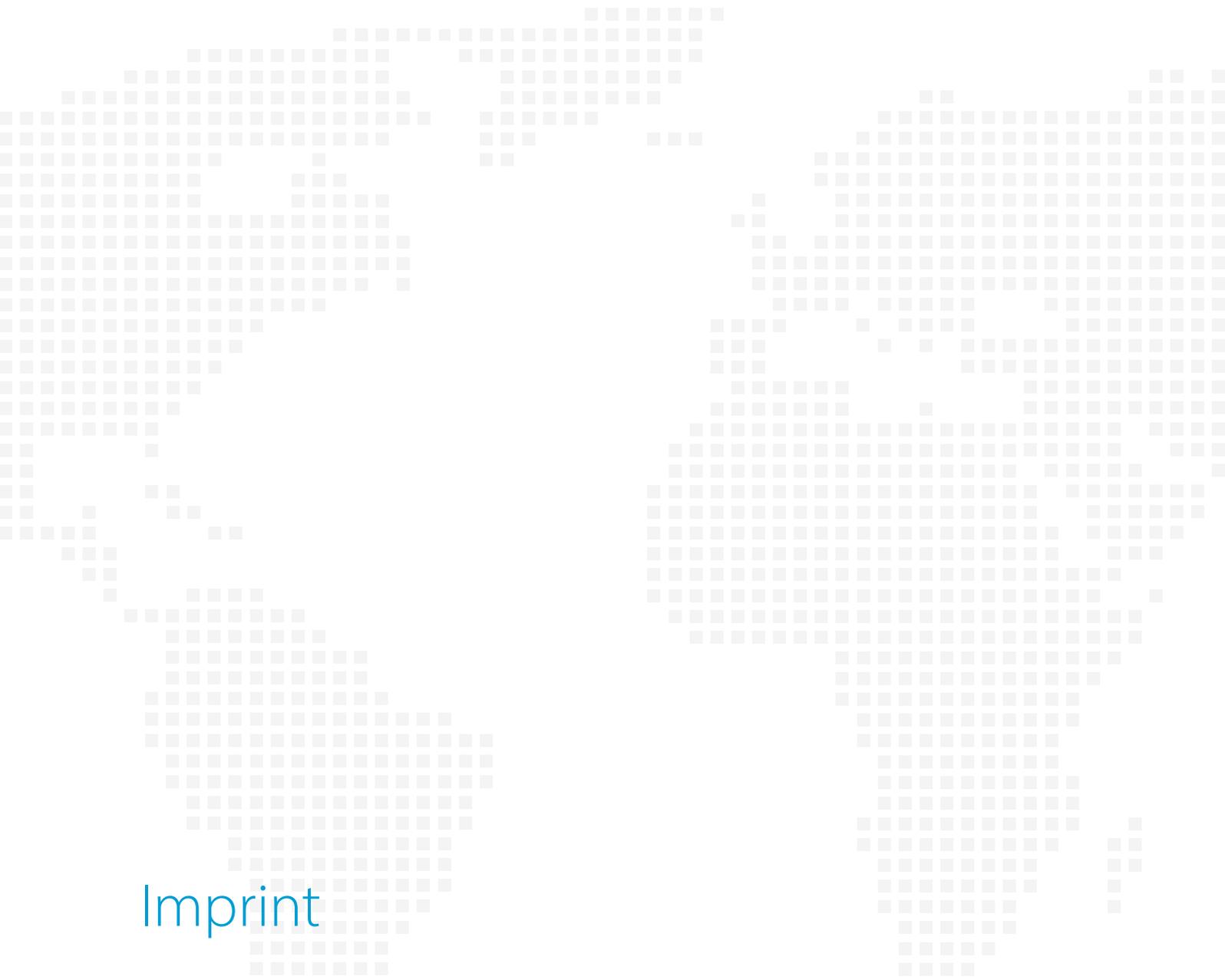
risk of specifics getting lost through a translation could be avoided. All other documents should also be in the same language for the same reason⁶.

In line with that, working packages for the defined goals should be defined when planning the project. Although this might reduce flexibility, it might contribute to a more structured process and the faster achievement of goals.

Furthermore, it is highly recommended to introduce a proper **monitoring system**. Monitoring should be carried out in all project components including the monitoring of activities realized and their costs as well as collecting feedback questionnaires of all trainings and awareness raising events. Responsible people should be appointed and trained to feed the monitoring system.

In that regard, PTB should also consider including a monitoring workshop with the partners to find out why the number of yearly accreditation and calibration requests as well as the finally provided services have not been properly documented and which kind of help would be needed to be able to provide that data in the future. This data would be highly beneficial to measure the progress towards an improvement of the QI and give an indication about the reduction of TBT. Moreover, this data would also be useful to the QI institutions themselves since they would dispose of valid data to prove an increasing demand and hence had better chances to receive more governmental funding when requested.

⁶ To understand the seriousness of this problem the following example should be considered: in the project proposal to BMZ (DO49) the overall goal is: „Eine in den Bereichen Metrologie und Akkreditierung arbeitsteilig organisierte Qualitätsinfrastruktur in SAARC erleichtert den Abbau von technischen Handelshemmnissen“ while in the proposal to SAARC (DO 45) the QI based on division of labor is completely missing since the “ultimate objective of this cooperation is to reduce technical barriers to trade and to facilitate regional integration”.



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