FAST

Functioning Advanced
Scientific Equipment

RIGHTS&SCIENCE

The FAST Support Programs

The Human Rights & Science (RandS) is a social enterprise with the vision that everyone in all countries, women, men and children equally, are benefitting from all aspects of the internationally agreed human rights. The mission is to provide opportunities for all, to balance of the world's resources, share knowledge worldwide and to eradicate extreme poverty. The mission is achieved through scientific capacity strengthening, social enterprising, community services and integration. www.RandS.se

Document information

Document name: The FAST Support Programs		
Author: Assoc Prof. Cecilia ÖMAN		
File name: Fast Support programs		
Revision history	Version No.	Date
This version	4.0	December 2015

Summary

The FAST Support program is a compilation of services offered by RandS to scientific Institutions, with the purpose of supporting the Institutions with the selection, transportation, installation, calibration, operation, maintenance, servicing, use and decommissioning of advanced scientific equipment. The service is offered in the form of support packages; Equipment procurement and delivery, Equipment management, Construction of laboratories, and Operational and financial plan development.

RandS offers to act as a facilitator and a coordinator among stakeholders, offering a solid structure of procedures that have previously been implemented with successful results. The tools used are unique and are based on lessons learnt from previous decades of aid support. RandS offers the services on a consultancy basis. It can also be possible to develop a joint grant application to get started. The program is designed with the purpose of phasing out RandS with time. The Target partners may also choose to manage the facilitation by themselves, RandS to will still provide the guidelines and share the experience collected.

Table of Contents

Introduction

The FAST Support program is a compilation of services offered by the RandS to scientific Institutions, with the purpose of supporting the Institutions with the selection, transportation, installation, calibration, operation, maintenance, servicing, use and decommissioning of advanced scientific equipment. The service is offered in the form of support packages; Equipment procurement and delivery, Equipment management, Construction of laboratories, and Operational and Financial plan development.

The FAST Operational and Financial plans (O&F plan) are necessary and complementary procedures (presented elsewhere) managed by the Target partner Institutions and RandS together. The O&F plans offers the Target partners Institution suggestions on how to prepare prior to procuring new equipment and on after procurement procedures. The Target partners Institutions are responsible for the development and implementation of the Operational and Financial plans (O&F plan) in their laboratories. The plans should be annually revisited and updated to reflect achievements and lessons learnt. The Target partner can also achieve stand-alone training and coaching on the O&F plans**.**

The tool was developed with the purpose of supporting the strengthening of scientific research around the world and with the ultimate aim to strengthen development and eradicate extreme poverty. Any stakeholder who can benefit from using the template is welcome to do so, whether it is in partnership with RandS or as a stand-alone. In case you find the tool useful and would like to support the future development of the same, you are welcome to contribute with a donation through the RandS website, www.RandS.se.

Related documents

1. FAST Concept
2. FAST Operational plan Guidelines
3. FAST Financial plan Guidelines
4. FAST institutional framework in Nigeria

1. Equipment procurement and delivery

1. **Identifying the theme of the Institution**
   The Target partner identifies research topics or educational areas with potential to be strengthened if provided equipment. These shall be scientific disciplines that are core to mission and objectives of the scientific Institution as well as key research areas suitable for strengthening or building research capacity. The Institution submits the compilation to the FAST National Office.
   - The departments to be involved with FAST are specified at the scientific Institution, and a list compiled.
   - A list of publications related to the selected scientific projects proposed is compiled, including papers published in international regional or national peer-reviewed journals.

2. **Proposed items to be procured**
   The Institution compiles a proposal of related items to be procured; including instruments, accessories, consumables, trainings, services, maintenance, physical infrastructure improvements and the expected costs. The Institution submits the compilation to the FAST National Office.

   Resource persons linked to the proposed equipment are identified.
   It can be expected that the proper management of possible new equipment may require the attention of a few truly dedicated persons from the scientific organisation, who have the energy and capacity to properly manage these new pieces of equipment. Such resource persons must have the authority by the scientific organisation management to take on the necessary responsibilities. The key persons are the researchers, the technologists (in Nigeria) and the technicians.

3. **Stakeholder pre-procurement meeting**
   Joint meetings are arranged between i) the Institution management, researchers, technologists, technicians, ii) the potential Suppliers and iii) FAST independent equipment expert advisers. In the meeting the proposed list of items is reviewed taking into consideration the research projects it shall be used for. At this meetings, the researchers present the research projects and teachers presents educational areas for which the equipment is required. Thereafter the experts recommend revisions in the equipment, accessories and consumables procurement proposal, if any. The experts may even propose appropriate manufacturers and suppliers.

4. **Inspection of the laboratory facilities**
   The laboratory facilities intended for the new equipment are inspected by the potential suppliers and the FAST independent equipment expert advisers, and succinct recommendations on physical infrastructure, work safety and environmental protection improvements are compiled.

The inspections also include existing instruments at the laboratory facility that are either broken down or are simply not functioning, and which would benefit from being repaired.

5. **Transportation, delivery and installation preparations**
   The modalities for transportation, travel insurance, custom, delivery procedures, installation, installation training, service and maintenance are discussed with the supplier and agreed on between the Institution and the Supplier. Options are presented in the operational plan guidelines. The discussion is facilitated by the Program partner.

6. **O&F plans**
   The Institutions develops firm Operational and Financial plans (O&F plans) according to the FAST O&F plan guidelines, including the advice provided by the experts.

   The plans will among other things, guide the buyer on how much can be spent of the actual procurement and how much must be set aside for related products and services, taking into account the generation of funds to cover the running costs.

7. **Laboratory inspection**
   The laboratories are inspected by the supplier and the order is not placed until the laboratories have been properly prepared to receive the equipment.

8. **Placing order**
   The order is place by the buyer and paid directly by the buyer to the manufacturer. A percentage of the equipment cost is paid when placing the order and the rest after delivery and checking that all items have been received according to the agreement. The price can be negotiated by the PP to have large volume discount,

9. **Transportation**
   The items are transported and delivered within two months, unless otherwise agreed between the buyer and the vendor when placing the order.
   The supplier takes full responsibility for the transportation, and charges 12,5 % of the procurement cost for the service.

10. **Delivery**
    The Institution has arranged firm procedures for how to receive the items. The items will be delivered by the transportation firm. The Institution discusses the time for delivery with the transportation firm. The packing list provided by both the manufacturer and the supplier is compared with the items received. The items are documented with a camera. Any abnormality is reported to the Program partner and to the supplier within 24 hours. If items is missing or damaged and it is not reported within 24 hours, then the responsibility to replace the item will be with the Institution.

11. **Storage**
    The items are stored according to the specifications. Nothing is un-packed. This is again he

responsibility of the Institution, and if not addressed properly, the Institution will have to replace mistreated items.

12. **Installation and quality assurance**
As soon as all items have been received and all facilities have been prepared the Supplier is called upon for installation. It is the Institution's responsibility to ensure that the facilities are appropriately prepared and all items required for quality installation is available. The supplier will arrive to the Institution within one week, unless otherwise agreed with the buyer.

13. **Installation training**
Installation training shall be performed by the supplier according to the agreement, and no later than two weeks after installation, unless otherwise agreed with the buyer.

2. Equipment management

1. **Operational and Financial plans**
   The previously developed Operational and Financial plans are annually addressed through discussions and in meetings. Constraints are indentified and solved and each item is followed-up in actual practice.

2. **Trainings**
   A package of trainings is agreed on. The expected participants are compiled with names, responsibilities and previous experiences. All participants will have to do a test prior to developing the package to ensure that the right level of training is selected, not too simple and not too qualified.

   - Trainings are provided at two levels, Basic and Advanced. The training program is developed to meet the needs of the equipment procured and address
     i) maintenance, ii) service, iii) general operation, iv) advanced applications and
     v) quality assurance.

   - The trainings can be arranged on-site and at national training centers or abroad and be provided by the manufacturers, the suppliers, equipment experts and trained trainers.

   - Training participants receive certificates.

   A pool of technicians with the appropriate training to do service and maintenance is developed as well as a pool of trained technician trainers. Exchange of knowledge and service among technicians and technologists and other partners (assuming the presence of adequate internet facilities) is facilitated.

3. **Service by supplier**
   The service contract can be negotiated through the PP to get large volume discount. Warranty is considered. Thereafter the service is managed according to the service contract between the buyer and supplier. Agreements with suppliers are followed-up on by the PP.

4. **Coordination between laboratories**
   - Visits are coordinated for technicians and researchers to stay at other laboratories to learn, through internship
   - Mutual exchange programs are facilitated e.g. to sending sample between members and receiving the results
   - Linkages with private sector laboratories are facilitated

2. **Target partner meetings**
   Representatives from all Target partners; the Institutional management, the researchers, the technologists / technicians and the suppliers meet face-to-face bi-annually. All operational issues are discussed and all challenges addressed. Such meetings are necessary to address issues

related to logistics; such as transportation, custom clearance, delivery, infrastructure preparations, installations, trainings, operations, service and maintenance. Other topics of the meetings can be:

- Arrange regular on-site meetings to screen existing equipment, assist researchers and technicians in getting the latest developments and techniques, offer maintenance and repair and discuss other equipment related issue.

- Invite suppliers to FAST meetings for interaction between FAST stakeholders. Create/strengthen peer networks of clients and users.

- Develop a charter with clear responsibilities between the universities and the suppliers on who does what in order to have the equipment operational.

- Inform suppliers on the potential marketing benefits if they manage to meet the actual needs of the Institutions. Encourage suppliers to open local offices in FAST countries.

5. **Equipment performance assessment**

Equipment performance monitoring and evaluation is performed real time. The Institution is in charge of collecting monitoring data and the PP supports with compiling analyzing and storing.

6. **Outcome evaluation planning**

Outcome evaluation planning is performed to evaluate real-time that the support enables the stakeholders to manage sophisticated equipment in actual practice.

3. Construction of laboratories

Facilitation is provided to have laboratories prepared to receive the instruments.

1. Expert recommendations are provided on the **construction of buildings** including electricity, gas, and water installations.
2. Expert recommendations are provided on the **design of laboratories** including the efficient flow of samples through the laboratory system.
3. Expert recommendations are provided on Laboratory Internet Management System (LIMS) and general laboratory **internet solutions.**
4. Expert recommendations are provided on appropriate **electricity solutions,** including generators and solar panels.

4. Operational and financial plan development

The Operational plan Guidelines (Öman, 2015 b) has been developed to support scientific institutions with the procurement and use of advanced scientific equipment. The intention is that an operation plan shall be developed prior to procuring a new piece of advanced equipment. Thus each piece of equipment shall benefit from its own operational plan. The plan shall be filled in jointly by the institutional management, the researchers and the technologists technicians together. A separate document is generated for each piece of equipment. Certain activities compiled in the operational plan, obviously come with cost implications. Moreover, the FAST Concept is based on the principle of sustainable economy. Thus the operational costs for starting up a new piece of equipment necessarily have to be covered by an investment capital, but after about two years the equipment is expected to cover its own running costs as well as, whenever possible, generate a profit which can strengthen the laboratory or the research in general. A FAST Financial plan Guideline (Öman, 2015 b) has thus been developed to be complementary to the FAST Operational plan Guideline document. The purpose with the financial plan is to prepare a strategy for the Institution to cover all the expenses that come with the running, maintenance and servicing of new or repaired piece of equipment. The financial plan compiles estimated costs as well as sources of funding. The cost recovery plan shows how costs related to procured or repaired equipment can be covered, and proposes options of funding sources.

This activity will be part of the other support packages if they are initiated, or this activity can be a stand-alone activity.

1. **Training**
   Training on the Operational plan and Financial plans concept.

2. **Coaching**
   Coaching on the development of the O&F plans in actual practices.

Evaluation planning

Each program builds on the Real-time Outcome Planning and Evaluation tool (ROPE) (Öman 2009, b, c) which measures whether the support provided by the Program partner enabled the Target partners to be successful. The Real-time Outcome Planning and Evaluation (ROPE) tool was developed from the Ten Actions (Tact) value platform, with the purpose of making it possible to implement the Ten Actions in actual practice (Öman, 2009, b, c)[1].

Ten Actions (Tact)

With the aim to compile lessons learnt from the vast international aid programs that have been implemented during the last few decades the programs were thoroughly analysed (Öman, in preparation)[2]. The analysis resulted in a set of aspects, the Ten Actions (Tact), which if addressed with an innovative, effective and efficient approach in mind, have the potential to strengthen the international interventions addressing poverty reduction. The author named the identified aspects "Actions". The Actions were ten in number and the author registered an organisation (Action10) in order to implement a program which could implement and assess the analysis in actual practice (www.Action10.org). The Ten Actions are; 1. Needs driven program, 2. Equal partnership, 3. Real-time Evaluation planning, 4. Strategic partnership, 5. Institutional capacity, 6. Sustainable economy, 7. Quality values , 8. Resilience, 9. Knowledge sharing and 10. Visibility.

Real-time Outcome Planning and Evaluation (ROPE)

The focus of the approach is the Target Partners. It is the dreams of the Target partners which is the core of all programs. Those dreams constitute the vision. The mission becomes the activities that need to be done to address the dreams of the Target partners. All RandS and Action10 programs are managed according to ROPE. The ROPE provides; i) a strategy for designing programs based on the needs and the knowledge of the Target partners, ii) means to overcome the challenges identified by the Target partners, iii) a sustainable economy, and iv) institutional capacity.

Outcome evaluation planning is performed through-out the FAST programs to evaluate real-time that the support enables the stakeholders to manage sophisticated equipment in actual practice.

1. **Aspirations**
   Compile information on what each technologist / technician would like to see in line with her/his assignment at the laboratory.
2. **Outcome challenges**
   Develop the Outcome challenges. This is a compilation of the reasons for why the technologists / technicians are not doing what they want to do in terms of managing the equipment.
3. **Progress markers**
   Develop the Progress markers. The Progress markers reflect directly the Outcome challenges. The progress markers address outcomes rather than outputs. Outputs are activities we have control over and are compiled in an activity plan, outcomes are the desired results of outputs

---

[1] ROPE was developed by Cecilia ÖMAN.
[2] The Ten Actions were developed by Cecilia ÖMAN.

and something we do not have control over. The progress markers must be formulated in a way that they are measurable. They are separated into single units which can be easily measured.

4. **Scoring**
   Score the Progress markers. The operation builds on a sequence of monitoring and evaluation events, for with dates, participants and results are recorded.
   a. The monitoring starts at the same time as the design of the program. The first task is to identify the baseline of the program; the presentation of the situation prior to the start of the program. Progress marker scorings together with the related comments are compiled in a monitoring data sheet.
   b. Scoring method

5	Excellent	90 – 100%
4	Good	70 – 90%
3	Adequate	30 – 70 %
2	Poor	0 – 30 %
1	Insufficient	0 – 10 %

   c. Scoring based on percentage supersedes scoring based on words. Thus, when a progress marker can be assessed with a percentage, then this is what the scoring shall be based on.

5. **Lessons learnt**
   Compile lessons learnt and revise the training program accordingly. Lessons learnt from the monitoring and evaluation exercises are fed into the training program revisions.

Acknowledgement

References

Brundin, C., (2014) Ownership and Equal Partnership, A study of donor-receiver relationships in two development programs in rural Togo. Independent Research Project in Political Science, International Master's Programme in Political Science, Department of Political Science, Stockholm University.

Earl, S., et al. (2001) Outcome Mapping; Building Learning and Reflection into Development Programs. I. D. R. C. (IDRC). Ottawa, Canada.

ITAD Ltd (2010) Evaluation of the Sida institutional support to the Stockholm Environment Institute (SEI) as member of the evaluation team. Report. www.itad.com

ITAD Ltd (2012) Evaluation of the FAST (Procurement, Installation, Service, Maintenance and Use of Scientific Equipment) project in Nigeria. Report, ITAD Ltd, East Sussex, UK. http://www.ifs.se/IFS/Documents/Publications/Evaluations/2012%20IFS-FAST%20Evaluation%20Report.pdf

McKinsey. (2001) Effective Capacity Building in Nonprofit Organizations. Prepared for Venture Philanthropy Partners.

Öman, C. B., K. S. Gamaniel, et al. (2006) Properly functioning scientific equipment in developing countries. Anal Chem 78(15): 5273-6.

Öman, B. C., Edward, R., Gamaniel, K.S., Klutsé, A., Eriksson, S., Hovmöller, H., Feresu, S., Gurib-Fakim, A. (2008) Procurement, Installation, Service and Maintenance Commitments for Scientific Equipment in Developing Countries – FAST, Phase One, Inventory of the current status of equipment and scientific infrastructure at selected universities in Africa and specification of what additional resources would be instrumental in strengthening scientific capacity. International Foundation for Science, Stockholm, Sweden, info@ifs.se

Öman, C. B. (2009 a) The Ten Actions (Tact). Report. Action10, Stockholm, Sweden; RandS, Stockholm, Sweden. www.Action10.org; www.RandS.se

Öman, C. B. (2009 b) Real-time Outcome Planning and Evaluation (ROPE) - Program Journal DESIGN. Template with Guidelines, Action10 ; RandS, Stockholm, Sweden. www.Action10.org; www.RandS.se

Öman, C. B. (2009 c) Real-time Outcome Planning and Evaluation (ROPE) - Program Journal EVALUATION. Template with Guidelines, Action10 ; RandS, Stockholm, Sweden. www.Action10.org; www.RandS.se

Öman, C. B. (2015 a) The FAST Concept. Report. www.RandS.se

Öman, C. B. (2015 b) FAST Financial plan, Guidelines. www.RandS.se

Öman, C. B. (2015 c) FAST Operation Plan, Guidelines, www.RandS.se

Öman, C. B. (2015 d) FAST Support Services, Guidelines. www.RandS.se

Öman, C. B. (2015 e) PSAN Institutional framework. Report. www.RandS.se

Öman, C.B. (2016 a) Innovations for a Better Future. Report. www.RandS.se

Öman, C.B. (2016 b) Scientific Innovations. Report. www.RandS.se

Öman, C.B. (2016 c) The Innovation Centers. Report. www.RandS.se

Öman, C.B.; Robert, P. (2016) Integration Innovations. Report. www.RandS.se, Facebook Theembassy Embassy.

Öman, C.B. (in preparation) Lessons learnt from decades of Aid programs.