

Functioning Advanced Scientific Equipment (FAST)

Support Programs

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# Introduction

This programme was developed by Assoc. Prof. Cecilia ÖMAN and is offered by Human Rights and Science, [www.humanrightsandscience.se](http://www.humanrightsandscience.se).

## Evaluation planning, ROPE

Thorough evaluation planning are done, an the method used is the HR&S tool “Real-time Outcome Planning and Evaluation” (ROPE). ROPE provides a strategy for designing programmes based on the needs and the knowledge of the partners, identification of the means required to overcome challenges, development of a sustainable economy plan, and establishing the necessary institutional capacity. The ROPE measures progress and compiles lesson learnt.

## Equal partnership

Equal partnership is here defined as a work relation where the partners share inputs, responsibilities and benefits in a balanced manner and have mutual trust, knowledge sharing, and support. In international collaboration, cross-cultural understanding becomes crucial. Expectations and core-values are agreed on and team-building efforts are made, so that each team member is comfortable enough to talk openly. Face-to-face meetings are crucial and major decisions are taken jointly.

## Strategic partnership

The Outcome based programmes often includes **Round tables** sessions with stakeholders such as government representatives, the private sector and the media. During the Round-table sessions the following procedures are followed; all stakeholders present themselves and what they bring to the table, then the chairperson manages a brainstorming session during a defined period of time and concludes it, she narrows down the discussion towards expected outcome and outputs from the collaboration and method for collaboration, and then the meeting agrees on follow-ups, activity plan and where and when to meet again, as well as appoints a coordinator. A report from the event summarises the brainstorming session, expected output and outcome, method for collaboration, activity plan; information on next meeting and assigned coordinator.

The Outcome based programmes often also includes meetings with and **visits to local communities**. The purpose is to encourage a dialog between academia and society stakeholders, to capture topics that need to be researched on as well as support the implementing of new scientific outcome. Field visits are arranged with the purpose of sharing knowledge about realities on the ground. Questionnaires are developed and after the visit the outcome are analysed.

The Outcome based programmes also aims at contribute to the generation of sustainable networks between researchers.

## Train trainers

In parallel and within the Outcome based programmes training of trainers are addressed. The potential trainers are selected by those who have special skills in supporting others, scientific capacity and training experience. Besides knowledge the trainers are provided with training material and are supported through a trainer’s network.

## About Human Rights and Science (HR&S)

Human Rights and Science has the vision that every HUMAN being benefits from all aspects of RIGHTS associated with access to food, water, shelter, healthcare, education and income through SCIENCE. The mission is to provide opportunities for all through international collaboration, cross-cultural understanding, scientific research, innovations, and social enterprising.

## The HR&S team

A team of senior professionals with extensive experience from scientific capacity strengthening programmes in lower income countries is ready to support the programme. It is composed of a balanced number of men and women from different continents. The team is dedicated to serving others in a respectful manner, agree with the HR&S value platform and has unyielding ethics. The members have in-depth knowledge about the conditions in lower income countries and about cross-cultural understanding. The team members have passion for the mission of HR&S, their social skills are high and the team spirit is excellent.

The OutSciCap team is composed of:

* Programme management at HR&S in Stockholm, Sweden.
* Country advisors, Support teams and programme partners in Target countries.
* Scientific advisors, worldwide.
* Technical experts, worldwide.
* Trainers, worldwide.

## Finances

HR&S offers the services on an equal partnership basis and aims to implement programmes with a **sustainable economy**. Thus, the design of the programme is complemented with sustainable economy and institutional capacity plan.

The funding of the programme is most likely covered by the Target country partner. The partner may develop a fundraising committee. The fundraising work can be structured as follows: a fundraising committee with three - five members is appointed in the Target country. The team gets basic fundraising training and a small reward for their extra work. The fundraising committee meets a certain period of time a certain day each week; maybe three hours every Monday afternoon. The task of the team is to benefit from Internet to search for grant opportunities. The committee will develop proposals, and submit to donors. When collaborating with HR&S, the fundraising committee may want to include the HR&S programme presentations in their applications.

## Related documents

1. FAST Concept
2. FAST Operational plan Guidelines
3. FAST Financial plan Guidelines
4. OutSciCap Support programmes
5. HR&S Case statement

# The offer

Human Rights and Science is pleased to offer an outcome based programme addressing Advanced scientific equipment operational and financial planning (FAST). HR&S offers to facilitate and coordinate the programme activities as well as bridge the communication between the scientific institution and the manufacturer. In case a scientific institution is to procure equipment or send in an application then HR&S offers to join forces. HR&S already has significant experience and have established good relations with some of the manufacturers. FAST may be able to negotiate a good price from a manufacturer and can strengthen an application to a donor by adding the benefits with the programme to the application.

Overall the Human Rights and Science is pleased to offer an outcome based programme addressing eight topics of relevance for scientific research. The purpose with having outcome based programmes is to tailor-make activities that are designed to reach a pre-defined target, the expected outcome.

1. The scientific method and research funding.
2. Research methods and tools.
3. Publishing scientific results and scientific communication.
4. Scientific supervision.
5. Implementation of scientific results.
6. Entrepreneurship for researchers.
7. Advanced scientific equipment operational and financial planning (FAST).
8. Cross-cultural partnership for researchers (CCP).

The offer addresses, in parallel, trainers and supervisors with the purpose of handing over a curriculum to the scientific institutions for future operations.

# The roles of the Target partners

The target partners are the;

* Technicians (and technologists)
* Researchers
* Scientific institution top management
* Suppliers

## The researchers

The researcher representatives identify the research topics 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 researchers and the technicians together

The researchers and the technicians together identifies the equipment considered most suitable for the Institution as well as for the research that needs to be performed.

The team compiles a proposal of equipment and related items to be procured; including instruments, accessories, consumables, trainings, services, maintenance, physical infrastructure improvements and the expected costs. The Committee submits the compilation to HR&S.

## The Scientific institution top management

The Scientific Institution top management contributes to the programme by preparing a document that compiles the below and submits to HR&S.

* **Scientific niche**
	+ The scientific competitive niche of the Institution
* **Scientific research**
	+ The ongoing research related to the Institutional niche
	+ Publications related to the on-going scientific projects, including papers published in international regional and national peer-reviewed journals.
	+ The research programmes required to be initiated
	+ The departments to be involved with FAST, and the contact persons.
* **Laboratory of excellence**
	+ Select a physical laboratory for the FAST programme. This laboratory can be targeted as a Centre of excellence.
* **The status of the scientific equipment**
	+ Audit the scientific equipment status, categorizing:
* The scientific equipment available
* The scientific present, but available and that would benefit from being repaired
* The scientific equipment that needs to be procured.
* **Identify resource persons**
The management identifies the resources to be linked to the new and old equipment
It can be expected that the proper management of new and repaired equipment may require the attention of a few truly dedicated persons, who have the energy and capacity to properly manage the equipment. Such resource persons must have the authority by the scientific Institution management to take on the necessary responsibilities. The key persons are the researchers, the technologists (in Nigeria) and the technicians.
* **FAST committee**

Developing, maintaining and motivating a committee composed of three or more representative from each of the four Target partners (management, researchers, technicians, suppliers). The committee is provided a meeting room, IT tools and refreshment as they meet once a month.

* **Costs**

The Institutional management covers the costs related to the programme.

# The support programs

## Support programme ONESelection of the equipment and preparation of the laboratory

## First visit

1. **Audit the status of the laboratory**

Compile a list of equipment that is available for i) immediate use, ii) require minor repair, iii) require major repair, iv) are not worth repairing.

1. **Compile a proposal of how to address equipment that would benefit from being repaired**

Propose methods of repair; by HR&S, by supplier of by Institution technician.

1. **Agree with the Institution management and perform agreed repair.**
2. **Arrange stakeholder pre-procurement meetings**
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 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.
3. **Make inspection of the laboratory facilities to propose adaptation if any**
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.

## Second visit

1. **Prepare for transportation, delivery and installation**
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.
2. **Develop Operational and Financial 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.
3. **Make laboratory inspection to ensure the facility is well prepared**
The laboratories are inspected by the HR&S experts and the supplier. The equipment order is not placed until the laboratories have been properly prepared to receive the equipment.

## Support programme TWOEquipment procurement and delivery

Any public tender is managed by the buyer. The HR&S FAST programme will appear in the tender in combination with the Agreed suppliers.

1. **Place the 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.
2. **Over-see the 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.
3. **Oversee the 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.
4. **Oversee 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.
5. **Ensure proper 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.
6. **Ensure 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.
7. **Operational and Financial plans revision**The previously developed Operational and Financial plansare addressed through discussions and in meetings. Constraints are identified and solved and each item is followed-up in actual practice.

## Support programme THREEEquipment use and management

1. **Operational and Financial plans revisions**The previously developed Operational and Financial plansare 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.

1. **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.
2. **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
3. **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.
4. **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.
5. **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.

# Support programme FOURConstruction of laboratories

Facilitation is provided to havelaboratories 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.

## Support programme FIVEOperational and financial plan coaching

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.

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# Abbreviations and expressions

GLP Good Laboratory Practices

O&F Plans Operational and Financial plans

PP Program partner

Program partner The FAST National partnerships and their executive units

FAST Functioning Advanced Scientific Equipment

Target partner The program has four target partners; the Institutional management, Researchers and students, Technologists and technicians; and the Agreed suppliers

SOP Standard Operational Practices

Technologists Operates in Nigeria

T-Forum Technologist / Technician Forum

TP Target partner

# 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](http://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](http://www.ifs.se/IFS/Documents/Publications/Evaluations/2012%20IFS-PRISM%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 – PRISM, 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. [www.Action10.org](http://www.Action10.org). HR&S, Stockholm, Sweden, [www.HR&S.se](http://www.rands.se).

Öman, C. B. (2009 b). Real-time Outcome Planning and Evaluation (ROPE) Program Journal DESIGN. Template with Guidelines, Action10, Stockholm, Sweden. [www.Action10.org](http://www.Action10.org). HR&S, Stockholm, Sweden, [www.HR&S.se](http://www.rands.se).

Öman, C. B. (2009 c). Real-time Outcome Planning and Evaluation (ROPE) Program Journal EVALUATION. Template with Guidelines, Action10, Stockholm, Sweden. [www.Action10.org](http://www.Action10.org). HR&S, Stockholm, Sweden, [www.HR&S.se](http://www.rands.se).

Öman, C. B. (2015 a). The FAST Concept. Report. HR&S, Stockholm, Sweden, [www.HR&S.se](http://www.rands.se).

Öman, C. B. (2015b). FAST Financial plan, Guidelines. HR&S, Stockholm, Sweden, [www.HR&S.se](http://www.rands.se).

Öman, C. B. (2015c). FAST Operation Plan, Guidelines, HR&S, Stockholm, Sweden, www.HR&S.se.

Öman, C. B. (2015d). FAST Support programs , Guidelines. HR&S, Stockholm, Sweden, [www.HR&S.se](http://www.rands.se).

Öman, C.B.; Robert, P. (2015) The Embassy HR&S, Stockholm, Sweden, www.HR&S.se.

Öman, C.B. (2016a) Scientific Capacity program. Report. HR&S, Stockholm, Sweden, www.HR&S.se.

Öman, C.B. (2016b) The Innovation Centers. Report. HR&S, Stockholm, Sweden, www.HR&S.se.