



SICD

SCANDINAVIAN INSTITUTE
FOR COMPETITIVENESS & DEVELOPMENT

ANNUAL REPORT 2011

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1: BACKGROUND

1.1: Mission

The mission of SICD is to support social and economical development by facilitating cluster development and innovation.

1.2: SICD

The background of the SICD includes collaboration between Swedish and East African partners since 2003. And Bolivian partners since 2007.

The funding partners are at present mainly Sida, VINNOVA and BTH.

SICD is situated at Blekinge Institute of Technology (BTH), Campus Karlshamn, Sweden.

The SICD team includes

Erik von Bahr, Consultant, Bahr Consulting

Supporting PACF for Fund Raising, senior advisor in R&D projects

Peter Kempinsky, Director, Kontigo

Supporting Innovation Systems and Clusters Program in the frame of PACF as well as in Bolivia

Tomas Kjellqvist, Research manager, BTH

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Supporting Innovation Systems and Clusters Program in the frame of PACF as well as in Bolivia

Lena Trojer, Professor, BTH, Director of SICD

The functions of SICD are

- Supporting Cluster Development and Innovation in Africa and South America
- International Graduate School on Innovation Systems, Clusters and Development
- R&D projects in Innovation and Development

1.3: Cluster development and innovation – the big picture

It is evident in Economic theory that co-located and clustered firms within the same sector perform better than others. Clusters can develop organically were links between firms tends to grow stronger over time, driven by mutual benefits. "Clusters are building blocks of modern economy".

Clusters have become a policy issue. What if an external or internal actor intervenes to stimulate cluster development? Organic growth of a cluster is to *let it happen* - doing an intervention. A Cluster Initiative is to *make it happen*.

Since the last twenty years Cluster Development has become a mainstream policy all over the world, in developed economies and emerging economies as well. Programs and policies have been implemented in many countries in order to use Cluster Development as a tool for competitiveness and economic growth.

VINNOVA, the Swedish Agency for Innovation Systems, pioneered in combining Cluster Development and innovation within the broader context of Innovation Systems. The Program on "Dynamic Innovation Systems in Regions" VINNVÄXT made a breakthrough and set a new standard by combining challenging framework conditions with a bottom up approach. Among

framework conditions the long-term commitment of VINNOVA (ten years) the qualifying decision process and the process support were among the most important success factors. The VINNVÅXT program was launched in 2002.

Ten years later significant impact has been made on industrial performance, regional prioritizations and policies and national policies.

At the Gothenburg cluster conference 2003 the major theme was "Innovative Clusters" attracting a delegation from Tanzania, Uganda and Mozambique. The Conference ignited Innovation Systems and Clusters Program in East Africa.

Cluster development and innovation in Africa – to make a difference

After one year of awareness building and anchoring, the first pilot program started 2005 in Tanzania and Uganda and in Mozambique 2006. Implementation was in focus, facilitators the prime target group and the forming of the Cluster Initiatives the objective. The activities included kick-start training and seed funding of the Cluster Initiatives, followed by evaluations follow up including retraining, facilitator's workshop and local cluster workshops. This approach has been built up to a comprehensive methodology - the process support. The yearly conferences within the University collaboration were used to gather facilitators from the three countries to spur exchanges of experiences and cluster businesses. Cluster and Innovation was not just a program, it emerged as a movement of dedicated individuals making difference.

Sida made an evaluation 2011 about the progress and the results and impact are evident¹.

During the years 2005 – 2009 the SICD team was engaged in several trainings, facilitator workshops, local workshops, strategic meetings and so forth. Cluster Development and Innovation were taking root. Especially in Uganda and Tanzania institutions for collaboration were built up, the national programs were successful to make an impact on the national policy agenda, successful in raising resources from national and international sources not just in money but also in kind. The most important achievement in the outcome of the Cluster Initiatives is economic and social growth for the firms, farms and the local community. In summary Uganda and Tanzania have reached sustainability in six years, impressive even compared with international experiences.

1.4: Pan African Competitiveness Forum (PACF)

Cluster development as a policy and a practice was an issue in several African countries. The TCI conferences in Lyon 2006 initiated formation of a Pan African Network on Cluster Development and Innovation. In Addis Ababa 2008 the PACF was formally established.

The organization PACF consists of a general assembly with an initial representation of 16 African countries, an executive board and regional chapters. Since the first meeting PACF has had yearly conferences and meetings as well as conducted other activities as cluster facilitators trainings.

One of the strategic initiatives is "the 1000 fires competition". The aim is to ignite at least 1000 Cluster Initiatives around Africa.

¹ Amitav Rath, October 2011 see
sicd.se/wp-content/uploads/2012/04/STRATEGIC-EVALUATION-OF-A-Sida-PORTFOLIO-Main-report.pdf
sicd.se/wp-content/uploads/2012/04/Final-Individual-Cases-Volume.pdf

2: ANNUAL REPORT 2011

The report is structured by country for the Cluster Development and Innovation function. Separate chapters will report on the International Graduate School and R&D&Innovation projects. The first chapter is however presenting the highlights from the Sida evaluation of the cluster and innovation development in Africa and Bolivia².

2.1: General observations and conclusions

The evaluator, Amitav Rath, concludes the Cluster Development and Innovation in Africa and Bolivia as follows.

- Well rooted in the theories and concepts of Innovation Systems, Triple Helix and Cluster Initiatives
- The outcomes and results from the evaluated Cluster Initiatives are very positive, cost effective and scalable
- The Triple Helix approach creates a stable framework
- Innovations are basically on the firm and farm level, user driven and in line with the expectations.
- Innovations are built on teamwork, the interaction between the experienced based knowledge and the scientific based knowledge, and this is a main factor for success.
- Cluster firms and farms are more productive and successful at the markets.
- Significant raise in income among cluster firms/farms and in the local communities.
- Universities play an important role as catalysts and providers of knowledge and expertise

Sida is recommended by Mr Rath to continue and enhance the cluster development and Innovation approach

Country by country

In the following chapters each country, where SICD has been involved, is described in terms of background, actual situation and the art and extent of SICD involvement. Some general comments are given as well. In the African countries the SICD collaborative program is called Innovation System and Cluster Program (ISCP). SICD collaboration in Bolivia is called the Innova Project. Special attention is given to the result and impact at the cluster level as well as on the level of national policies.

2.2: Uganda

Background

The ISCP Uganda started 2005 and is hosted by Makerere University, Faculty of Engineering³. ISCP-Ug is a program that aims at making Uganda's businesses more competitive locally and globally, through innovation and cluster initiatives.

Actual situation

At the year 2011 twentytwo Cluster Initiatives had been launched representing different sectors of Uganda's economy - agricultural, metal fabrication, creative industry and service based industry.

ISCP-Ug has registered success and made contributions in areas of research, increase in production and incomes, market creation and effective linkages, among others. There has also been an increase in awareness of the cluster concept. As such, there are various on-going

² see note 1.

³ later on becoming CEDAT, College of Engineering, Design, Arts and Technology

attempts at gradual mainstreaming even in government policy through various programmes such as support of the cluster concept, industrial clusters and competitiveness. Evolving policies include the Trade and Industrial Policy that advocates setting up of industrial parks as well as the agricultural zoning policies.

ISCP-Ug been successful in raising support and resources from international donors and the Ugandan government.

SICD related activities

SICD has been supporting the development of ISCP-Ug by an extensive process support since 2005 up to 2009. SICD has delivered several trainings, facilitators update workshops, local workshops, workshops with policy makers. The mind-set and practice of SICD is to make sustainable commitment to keep and develop the relations to ISCP-Ug. This is not a project - this is a process. ISCP-Ug has since some years reached a sustainable level, self-organized and self financed. ISCP-Ug is well rooted at the cluster level but also as a mainstreamer in economic policy of Uganda and has brought together University, Government and the private sector. The role of SICD today is to be a collaborative partner in disseminating the Ugandan experiences in cluster development and innovation to other African countries. Within the frame of the International Graduate School on Innovation Systems, Clusters and Development several experienced cluster facilitators are PhD students. This is an on-going and long-term activity.

Dr Ziraba has participated in the development of the second generation of training and support program. During 2011 Dr Ziraba participated in the facilitators training in Moçambique within the bilateral program between Sweden and Moçambique.

Evaluator's conclusions

The evaluator notes the support from a good number of national organizations collaborating with ISCP-Ug. It says "This is very important for the sustainability of the project (ISCP-Ug) and also spill over to the broader national economy" (p 46). The evaluator appreciates the governmental funding of the coordinating unit of ISCP-Ug at Makerere University. It promotes sustainability and the positive outcome. One major obstacle for the Cluster Initiatives is the lack of capital, which prevents the cluster firms to invest in necessary equipment.

2.3: Tanzania

Background

ISCP-Tz started 2005 and was hosted by Dar es Salaam University until 2011, when the program was transferred to COSTECH (Tanzania Commission for Science and Technology) where a coordination unit has been built up. Started in 2003 as a concept, ISCP-Tz has gone into a process of creating innovative minds and innovative products that are slowly coming up as a pronounced economic endeavour. With time and more efforts, ISCP-TZ is able to change Tanzania's economy, employing its large population with economic achievements that can change the economic position of Tanzania in the world economic map. Through mainstreaming the ISCP-Tz program into government policies and regulations, much more can be done⁴.

Actual situation and SICD related activities

In the year 2011 nineteen Cluster Initiatives were operating in different locations and sectors of the Tanzanian economy, bringing in innovation and value addition in sectors such as agribusiness (food processing, seaweed farming) metal works, mining and tourism.

As for ISCP-Ug SICD has been supporting the development of ISCP-Tz by an extensive process support since 2005 up to 2009. SICD has delivered several trainings, facilitators update workshops, local workshops and workshops with policy makers. As for Uganda the operational

⁴ in a foreword by Prof Burton Mwamila the first chairperson of ISCP-Tz.

process support ended 2009 and ISCP-Tz has proven the ability to uphold and develop ISCP-Tz at the cluster level as well as a contribution to national economic policy. To repeat: *This is not a project - this is a process*. ISCP-Tz has since some years reached a sustainable level, self organized and self financed. ISCP-Tz has brought together University, Government and private sector. The role of SICD today is to be a collaborative partner in disseminating the experiences from Tanzania in cluster development and innovation to other African countries. Within the frame of the International Graduate School on Innovation Systems, Clusters and Development there is an expressed interest Tanzanian actors to join as PhD students.

Dr Flower Msuya, Mr Sosthenes Sambua and Eng. Peter Chisawillo have during 2011 participated in the development of the second generation Training and Support Program based on African experiences and evidence of cluster development and innovation. Mr Sosthenes Sambua participated in the training of cluster facilitator in Moçambique 2011.

Evaluator's comments

The evaluator identifies positive outcomes from many cluster initiatives when it comes to economic indicators, which the evaluator comments: "have been the most impressive achievements of the work done in Tanzania" (p 26). However, it is stated that innovations are incremental and to introduce research based innovations should demand far more resources. One weakness is the lack of a M&E system. Plans have been made but not implemented so far. The evaluator addresses the transfer of ISCP-Tz to COSTECH. This means that the ISCP-Tz now can be coordinated at a national level, which enable ISCP-Tz to meet challenges at national level as well as cluster and firm/farm level.

2.4: Moçambique

Background

ISCP-Mç was a part of the pilot program within the framework of ISCP-EA. A training in June 2006 initiated the ISCP-Mç, by the time hosted by Eduardo Mondlane University - UEM. Eight Cluster Initiatives (CI) were selected by the National Steering Committee and evaluated by the VINNOVA team. Due to administrative constraints concerning the seed funding, the CI did not work. An attempt to restart the pilot program took place 2008. Later, Sida and the Ministry of Science and Technology agreed to transfer the ISCP-Mç to the ministry and a new institution, namely The National Fund for Innovations (FNI). The Cluster Development became an important issue for the Moçambique Government and within the four-year bilateral R&D Program between Sweden and Moçambique the Cluster Development and Innovation Program become a vital component. Still, in spite of the initial difficulties, some CI did continue their efforts by voluntary forces.

Actual situation and SICD related activities

During 2011 the new bilateral R&D program was launched and the partnership between FNI and SICD was established. SICD participated in the Awareness Workshop/conference in June with the theme of "Innovative Cluster". Meetings with the minister of S&T and FNI were held. In October the first training took place in Maputo. The training was inaugurated by the Minister of S&T and introduced by the coordinator of the Program, Dr Antonio Cumbane. Attending trainers included from Uganda, dr Ziraba, from Tanzania, Mr Sambua and from Sweden Mr Kempinsky and Mr Sjögren. All material and lectures were translated into Portuguese. Dra Atanásio Alsácia, General Director of FNI, closed the training. The TP resulted in business plans for ten CI, located in the regions of Inhambane, Gaza and Maputo.

In December 2011 SICD visited Maputo for strategic meetings with FNI, Swedish Embassy and the STIFIMO program (Finland Moçambique).

Evaluator's comments

The evaluator points out the difficulties and challenges that encountered the ISCP Moçambique from the start. Lack of institutional support from UEM and lack of clarity concerning the role and status of the coordinator and other issues did delay the program. After the transfer from UEM to Ministry of S&T and the establishment of FNI and the awareness and support from the government a real restart was taking place during 2011. Still, some CI did continue the activities on a voluntary basis, which is a very good sign of commitment from the facilitators.

2.5: Bolivia

Background

Sida financed a delegation from Bolivia to visit the TCI Conference in Ottawa, Canada, 2004. The aim of the participation at the TCI conference was to explore the concept and experience of "innovative cluster". VINNOVA (later on SICD) became the Swedish partner to UMSS (Universidad Mayor de San Simon) in Cochabamba. In 2007 the collaboration was established, and the INNOVA project started with a delegation from UMSS participated in a study tour in the Swedish Innovations Systems and Cluster world. The VINNOVA team has visited Bolivia two times every year, for two weeks each visit, from 2008.

The approach in Bolivia is in some extent different from East Africa. The team from Sweden was engaged to facilitate and support the Cluster Initiatives, but also as a strategic support to UMSS in order to develop a policy framework for cluster development and innovation at regional level (Cochabamba region) as well as at the national level (the Viceministry of Science and Technology) To conclude, the contribution of VINNOVA team has been far more operative than in the contribution in East Africa. By time, the Unit for Technology Transfer (UTT) responsible for the Innova project at UMSS has built up capacity and competence to support cluster development, innovation and relations between the SME in the Cluster Initiatives and the university (Research Centres and Faculties)

The collaboration with UMSA (Universidad Mayor de San Andrés) was started in 2009. The role of SICD team was to support the establishment of the Wood Cluster Initiative.

Actual situation and SICD related activities

In 2011 the project INNOVA project was supposed to end, but was prolonged to the end of 2012. During 2011 the SICD team visited Bolivia one time (second time of the year became February 2012).

Activities of the SICD team during 2011

- Support to UTT-team in workshops for the Food and for the Leather Cluster Initiatives.
- Strategic discussion with CADEPIA (the Chamber of Commerce for the SME-firms) to support the collaboration between CADEPIA and UTT in fostering new cluster initiatives using the methodology from Food and Leather Cluster Initiatives.
- Strategic discussion with UTT-team regarding next step in collaboration, including process support to UTT and CADEPIA.
- Strategic discussion with the Ministry of Science and Technology.
- Strategic discussion with Swedish Embassy.
- Support to Wood Cluster Initiative and strategic discussion with UMSA.

The SICD team has been involved in a dialogue with Sida, UMSS and UMSA to explore future collaboration within the framework of the next bilateral agreement between Sweden and Bolivia.

Evaluator's comments

The evaluator addresses the important role of UTT to enhance the relations between UMSS and private sector. The interface between UMSS and SME is covered by a multitude of activities like training, prototyping, marketing, sales promotion, student projects, ITC support etc. The cluster development and innovation approach is seen as a promising way forward in building relevance and promoting impact.

2.6: Pan African Competiveness Forum

Background

During 2010 SICD and PACF received funding from Sida to develop and implement a 2nd generation training and support program coordinated by PACF. A team of six trainers was formed - four trainers from Tanzania and Uganda and two trainers from SICD. The trainers from Uganda and Tanzania have hands on experiences from cluster reality but also experiences from working at the national policy level. The trainers from SICD have experiences from the VINNVÄXT program, regional innovation strategies and cluster development and innovation in general. The team developed a new training program based on African experiences and examples. In October 2010 two trainings took place. The first in Nigeria with participants from the Gambia and the second in Ghana with Senegal as invited participants.

Actual situation and ICD related activities

At the PACF conference in Entebbe, Uganda in February 2011 the trainers from Uganda, Tanzania and Sweden met the chairman of the National Steering Committee of Ghana, Mr Francis Kusi. The aim of the meeting was to give feed back from the trainers' team on the business plans from the cluster initiatives from Ghana. The third training took place in Nairobi, Kenya with participation from Ethiopia in June 2011. During 2011 the trainer team evaluated the Business Plans of the Cluster Initiatives from Nigeria and Ghana.

Evaluator's comments

The evaluator underlines the time span is too short to see substantial results so far. The evaluator is sceptical to the overambitious organizational structure of the PACF and he point out that the strategic challenge is the implementation of cluster initiatives and the cluster management issue.

2.7: International Graduate School on Innovation Systems, Clusters and Development

Background

As an impact of the development of the Innovation systems and Clusters Program in East Africa (ISCP-EA) since 2004 and in Bolivia, Cochabamba, since 2007 one research component identified in the programme is PhD training. This component contributes with a research based understanding and practice of the development of Innovative Clusters and Innovation Systems. A number of active cluster facilitators have expressed a strong wish to conduct research as a PhD candidate within the

frame of the Innovation Systems, Clusters and Development (ISCD) or are already PhD students and wish to be linked to a graduate school of the ISCD.

The objective of the International Graduate School is

- to develop research based understanding and practice of innovative clusters and innovation systems and thus contribute to social/economic sustainability.
- to give PhD students international experiences and benchmarking possibilities within the core knowledge field of the graduate school as well as networking possibilities of value for future carrier.

During 2011 the development of the International Graduate School was focused on finding ways to initiate the core activity namely

2.7.1: The International Summer/Winter School on Innovation Systems, Clusters and Development,

which aims at:

- understanding how, and under what circumstances, science, technology and innovation can contribute to competitiveness, development and poverty eradication.
- promoting the concept of inclusive innovation, which are innovations targeting the needs of the most vulnerable groups in society, the groups most exposed to the effects of global changes.

These goals will be reached by involving stakeholders in national innovation systems to mutually learn about the opportunities and barriers for problems solving and cooperation.

We are convinced that theories about Systems of Innovation could provide the tools to inspire inclusive innovation for sustainable development and poverty eradication.

The International Summer/Winter School on ISCD will provide

- the latest approaches in theory building about innovation systems and cluster development meet current issues in the practice of constructing innovation systems and develop clusters
- a meeting place for stakeholders to jointly investigate real life problems experienced in their daily activities and explore solutions that would be beneficial for a majority of the populations in their countries.

2.8: R&D Projects

2.8.1: Solar power to the poor people: Using innovative clusters to develop business models for technology transfer

Background

This project proposes to improve the productive uses of energy in innovative clusters with solar energy installations adapted to their needs. The project will draw on previous experience of income generation through almost 75 innovative clusters in South Africa, Tanzania and Uganda. These 75 clusters are based on agglomerations of small and medium sized enterprises with a total geographical spread encompassing both urban and rural surroundings. Each cluster consist of a number of firms that are linked in a production chain or operate in the same trade, but cooperate to achieve joint competitiveness. They involve people in different productive functions throughout

the value chains, and we find these people in very different socio-economic situations. Investing in solar technology for clusters would show long-term social and economic effects as the involved individuals of all social strata could increase their incomes over time.

Activities 2011

Field studies in 2011 demonstrated clearly a potential for use of solar energy, particularly in the agro-related clusters. Drying, cooking and steaming (for sterilization) were possible uses for solar power. These applications could be addressed by intermediary technologies available as DIY descriptions on the Internet. However it was also found that a substantial shift could be made through locally produced prefabricated units for drying etc. Currently in Uganda and Tanzania, there are no such firms, but there is knowledge, for instance within the engineering and metal works clusters that could be applied.

Studies of available Swedish technologies proved that these technologies were too expensive to put in use in clusters or that they required adaptations. There was no immediate positive response from the most promising Swedish Solar technology firms to engage in development projects in Africa as much of their current productive capacity is used for exports to China. For the most common technologies, there are already local companies importing photovoltaic solar panels to Africa, so the contribution of bringing in Swedish companies in this trade would be limited.

It was also obvious that the missing link in current solar energy technology is the storage of energy. If large scale drying should be applied, it would require a possibility to store up energy to use on cloudy days to leave the drying process uninterrupted. The original proposal introduced the idea of clusters investing more in energy equipment than their immediate needs to provide energy services to the surrounding community also fails on the storage issue. Customers need to get energy available at time for consumption, which requires appropriate storage and carriers.

Based on these observations, the theme has suggested redirecting the project more into R&D cooperation rather than applying on-the-shelf technologies. The most promising idea is to look at hydrogen as a possible storage and energy carrier. A report on the current state of hydrogen research has been written, containing a proposal on how to operationalize such a Triple helix R&D project on technologies for a "Local Hydrogen Economy".

2.8.2: Innovative clusters closing the gap between University and Society in East Africa. A living proof of Mode 2 excellence?

Background

Universities in East Africa collaborate in innovative cluster initiatives in diverse locations in knowledge production in the context of application. This means that scientific researchers participate in socio-economic development and poverty reduction by developing knowledge in close collaboration with actors in local communities, with business and Government. The umbrella organization PACF (Pan African Competitiveness Forum) provides a supportive structure and facilitates collaboration between cluster groups in different African countries.

The study focuses on two cases where cluster initiatives develop innovative solutions to address changing situations – climate change, increasing global market competition, deteriorating natural resources and an increasing need for diversified income generation among women and men. One case is the Tanzanian Zanzibar cluster for seaweed production. The other case is salt production cluster in lake Katwe, Uganda. Both clusters aim towards increasing product quality and product diversity to increase the income, and at the same time improve social conditions for workers and their families. Many of the participants are women.

The main aim is to study how innovative clusters can foster timely implementation of knowledge products with socioeconomic relevance. Focus is on the research component, since socioeconomic development is part of the strategic policies of universities in Uganda and Tanzania. The project includes focus group discussions and participatory exercises with PACF key persons and cluster members. Research results will be disseminated continuously and through a final report to research participants in the two clusters and to PACF partners. Together with one research partner from Tanzania and Uganda respectively, we will also participate in conferences arranged by Sida and UNESCO.

Activities 2011

Clusters aim to increase competitiveness without leaving some behind. The concept of cooperation aims to reduce the negative aspects while stimulating the positive aspects of supporting private firms within the same branch. It was evident in both our case studies that the Cluster Initiatives had brought buyers and producers in the local community into collaboration, and that this had been beneficial for both. In the Katwe Salt Lake Cluster Initiative it was also evident that within the groups of loaders, extractors and traders, profit was divided equally and in solidarity with those in temporary need. There was a balance between collective sale and individual sale, which also occurred in the Zanzibar Seaweed Cluster Initiative. Individual sale of dried seaweed was done parallel to collective production and sale of seaweed soap for the benefit of the group and the group members.

We found a genuine interest and engagement in Mode 2 research with social relevance on all levels at both Mbarara University and Institute of Marine Science (IMS) in Zanzibar. IMS Deputy Director Dr. Nyandwi expressed that when joining the cluster initiative, senior researchers were reluctant to share their learning with non-academic stakeholders, but with the success of the first cluster efforts, Mode 2 research had permeated the Institute from professors to students, who were trained to collaborate and contribute with society during study programs.

It is our concern that Cluster Initiatives should not be merely consultancies with a financial focus, but should remain genuinely collaborative and mutually beneficial in terms of knowledge. In a Triple Helix where roles are blurred, research will benefit

from knowledge sharing with local entrepreneurs and access to governmental information and collaboration.

With knowledge sharing in focus, we find a clear demarcation between Mode 2 research and consultancies. Financial dependency as Holland describes is not the same as the shared interests evident in the Cluster Initiatives. There is no direct financial benefit for facilitators in clusters, since most of the work is voluntarily. In the Katwe case, an investor has paid for the research and therefore, extra attention needs to be paid to keep the salt workers in a central position regarding ownership of results and access to benefits coming from the research. We want to emphasize that balancing between bringing in capital and losing control is delicate, and may well lead to the failure of clusters in need of advanced and costly initial investments. In the case of Zanzibar, stepwise development has been possible since soap can be made manually as well as with the help of machines brought in at a later stage, and since dried seaweed is continually sold to exporters without further refinement at the local level.

We also found that research in the cluster context was more visible and more beneficial when it was formulated as an interdisciplinary activity, as in the Zanzibar case. Both cultivation methods, technology for processing of the harvest and organization and marketing were addressed within the cluster. These issues were on their way to be brought up in Katwe case, but hitherto, chemistry had been mostly disciplinary research.

With reference to Fu et al, the role of PACF and the thousand fires to be lit throughout Africa seem to be highly relevant and important for the development of local and appropriate knowledge production. The establishment of cluster initiatives between local actors including universities in the vicinity of the small scale business firms and local government officials leads to innovation taking place at a speed fitting the local stakeholders and in areas crucial for further development and competitiveness of the business. For example, in Lake Katwe, where salt has been extracted by manual labour for over 100 years, improvements in quality and work conditions can only be achieved with continuous experiments and dialogue on site with salt workers together with local scientists.



The host organisation of SICD is Blekinge Institute of Technology (BTH) - Campus Karlshamn, Sweden.

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