SCIENCE AND TECHNOLOGY PARKS AND BUSINESS INCUBATORS IN AFRICA SURVEY REPORT 2011

IASP International Association of Science Parks

Member of WAINOVA – World Alliance for Innovation

IASP is a NGO in Special Consultative Status with the Economic and Social Council of the United Nations

http://www.iasp.ws

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1. INTRODUCTION

The International Association of Science Parks created its African Division in the acknowledgment that our industry (Science and Technology Parks and Business Incubators, from here on referred to as STPs and BICs respectively) is now a reality in Africa even though these organisations are still recent creations in the region and consequently small in numbers.

In order to consolidate our African Division, and to plan projects and activities to support our members and enhance our industry, we felt the need to gain more knowledge about the current situation of STPs and BICs in Africa, their main features and objectives, as well as the challenges ahead. To this end we conducted an initial survey with the results presented in this report and which will be discussed at a workshop that IASP African Division will hold at the beginning of 2012.

2. METHODOLOGY

The data analysed in the present report has been gathered from the 31 replies to the IASP survey called "Science and Technology Parks and Business Incubators in Africa" sent to African organisations.

However, in order to involve the main African entities related to innovation, technology transfer and creation of companies in the study, and thus obtain a wider vision of the state of innovation in the continent, the questionnaire was sent to 137 organisations (STPs, BICs, universities, associations and innovation offices) in 25 African countries (Algeria, Angola, Botswana, Cape Verde, Chad, Congo, Ethiopia, Ghana, Ivory Coast, Kenya, Liberia, Libya, Mauritius, Morocco, Mozambique, Namibia, Nigeria, Rwanda, Senegal, South Africa, Tanzania, Tunisia, Uganda, Zambia and Zimbabwe).

The answers received represent 22.6% of the organisations to which the questionnaire was sent. Whilst it would have been desirable to have a higher number of answers, we can't forget the fact that the STP/BIC industry in Africa is still young and relatively small, and therefore so is the IASP membership in the continent.

The data shown corresponds to May 2011.

The online survey consisted of three questionnaires, with specific questions for each of the main categories of institutions analysed:

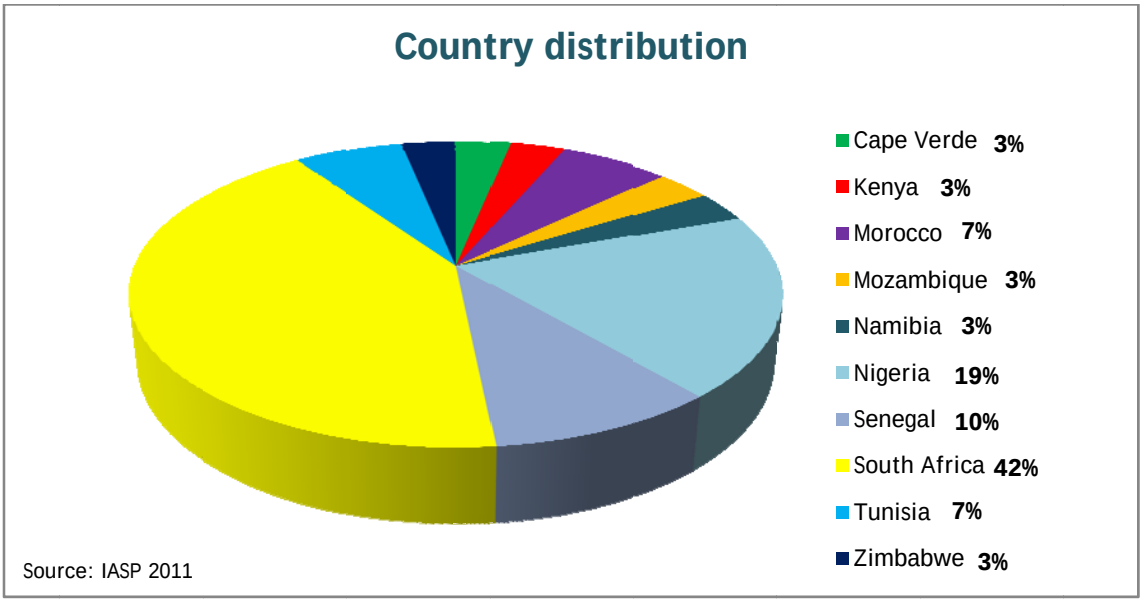
- Science and Technology Parks (STPs)
- Business Incubators (BICs)
- Other projects aimed at supporting innovation, fostering entrepreneurship, incubating new innovative companies, etc., which cannot be considered a Science Park or Business Incubator.

3. GENERAL INFORMATION

3.1. Geographic distribution

At the time of conducting the survey, the International Association of Science Parks had 10 members and 2 candidates for membership in 7 African countries[1].

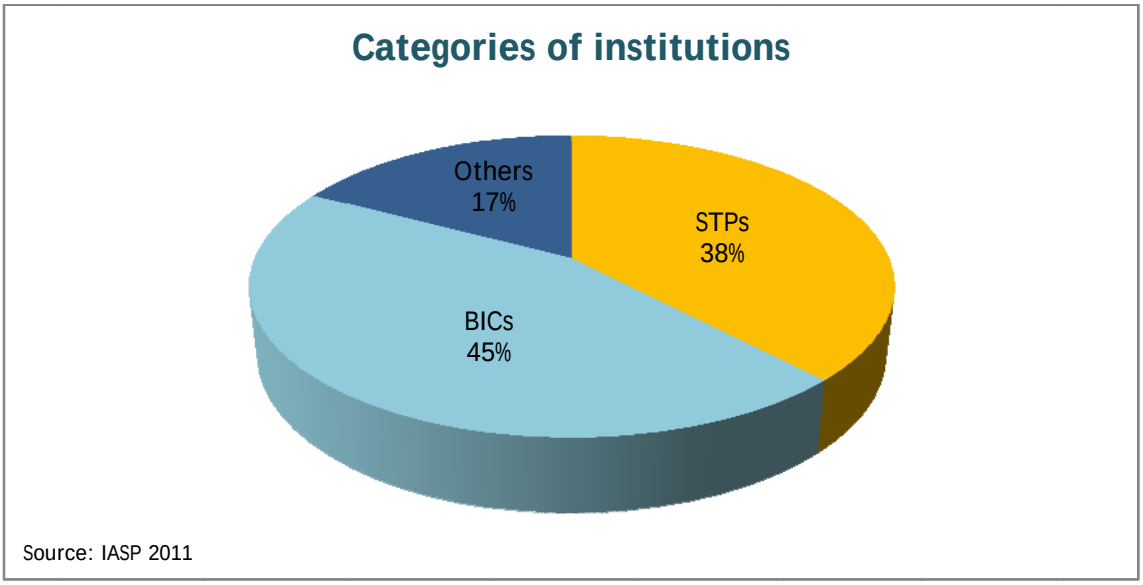
The 31 answers received came from 10 African countries with the following breakdown.



[1] Botswana, Kenya, Namibia, Nigeria, Tunisia, Senegal and South Africa.

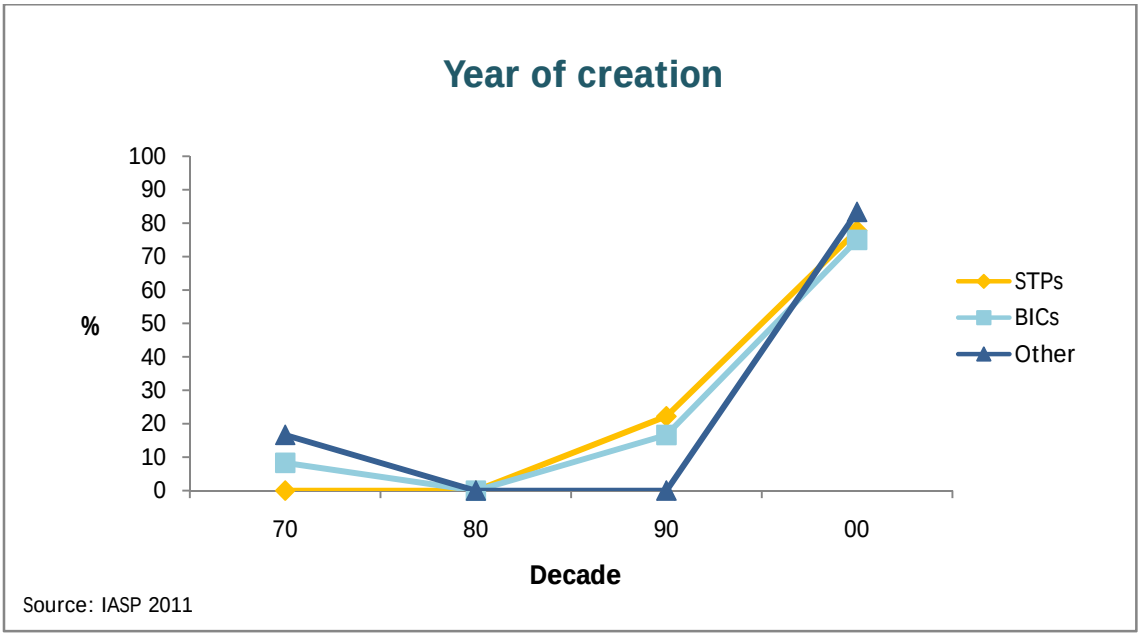
3.2. Categories of institutions

The survey is aimed at three target groups: Science and Technology Parks (STPs), Business Incubators (BICs) and other initiatives aimed at supporting innovation such as projects fostering entrepreneurship, incubating new innovative companies, etc. which cannot be considered a Science Park or Business Incubator.



45% of the respondents were BICs, 38% STPs, and the remaining percentage of the answers (17%) came from other projects such as universities, government organisations and consultancy companies.

3.3. Year of creation



Source: IASP 2011

Looking at the year of creation we can confirm from this that the industry of STPs and business incubation is fairly new in the African continent.

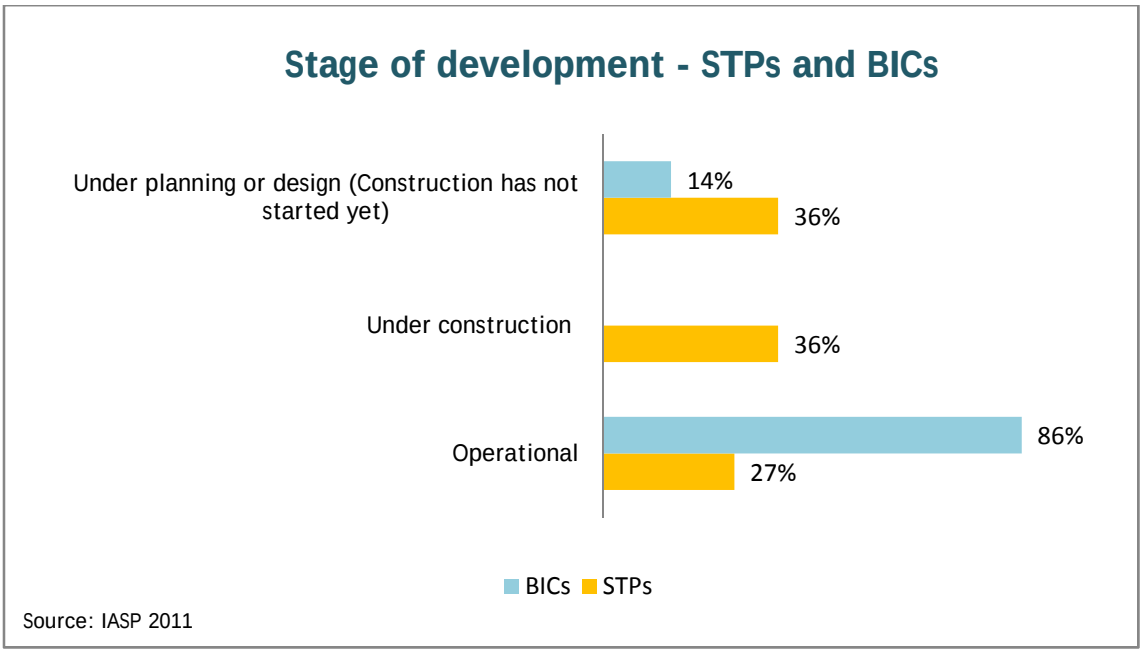
The majority of the organisations surveyed have been created in the last decade. This is shown by 78% of STPs, 75% of BICs and 83% of other organisations stated that they were established during the 2000s onwards.

3.4. Stage of development

Question asked:

What stage of development is your project in?

The graph below shows the stage of development of the institutions surveyed. 86% of the BICs are operational whereas less than one-third of STPs (27%) have opened their doors. The rest of the Park respondents are divided in equal proportions (36% for each) between those which are under construction and those under planning or design (construction not yet started).



In order to know more about the organisations that were being constructed or under planning we asked for further information about the stage of development of the projects; when they plan to open; if there are any companies, universities, technology centres already interested in relocating to their premises, etc.

Each Park is a unique case and has a different process of development due to a large variety of endogenous and exogenous factors. However, according to the answers received, the infrastructures of all the STPs under construction are currently at more than 45% of completion.

Moreover, all of these STPs stated that they had already established a collaborative connection with academic institutions; in the majority of the cases (66.7%) these institutions are located inside the STPs or adjacent to them. Some of the STPs surveyed have already received expressions of interest from technology based firms who would like to be located on their premises.

Another element present in all cases of the STPs is the business incubator.

A significant fact emerges from this data, which is the following: the current number of STPs/BICs in Africa will increase in a highly significant 40% over the next few years, as this is the percentage of such projects that are currently under planning or construction.

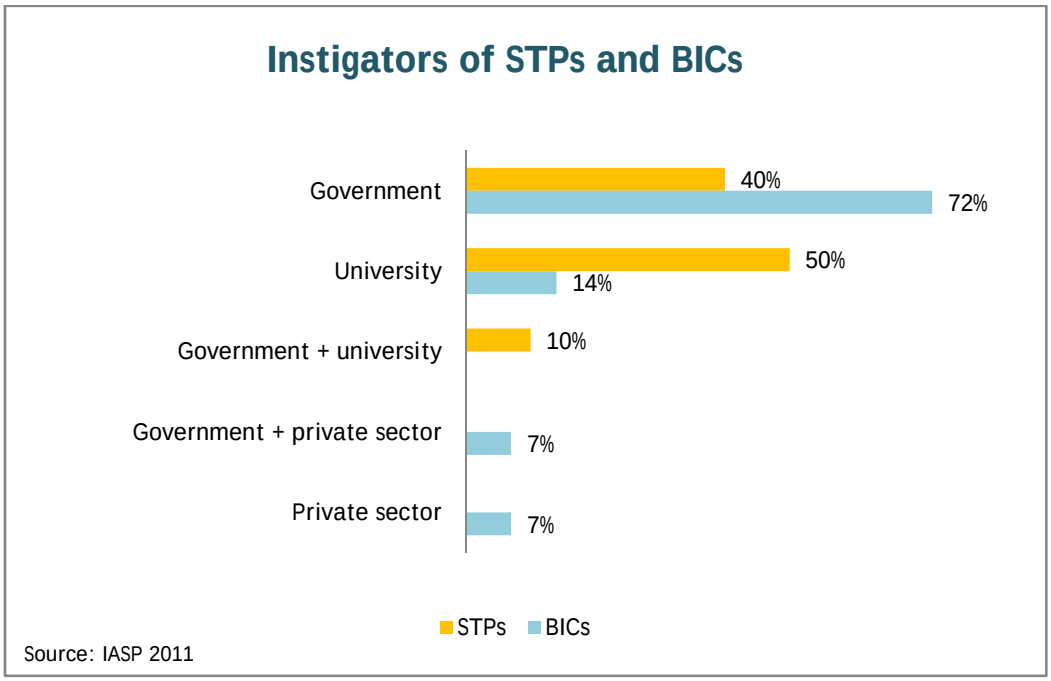
3.5. Instigators of creation

Question asked:

From which institution or organisation did the idea of creating the Park/BIC mainly come from? (Ministry of Economy, regional government, local authorities, university, banks, private sector, etc.)

In this section, organisations were asked about the institution that had the idea of creating the Park/BIC. Through the answers to this question it may be possible to identify some of the main development agents in the region.

The graph below shows the institutions who promoted the initiative of creating the STPs and BICs. It is interesting to compare the differences found between both kinds of organisation; in the case of the BICs the role of government is crucial (instigating 71% of BICs), meanwhile the universities are the main promoting agent for STPs, followed very closely by the government. Besides this, it should be highlighted that the private sector plays a not insignificant role promoting the creation of BICs (14%, of which 7% also has government support).

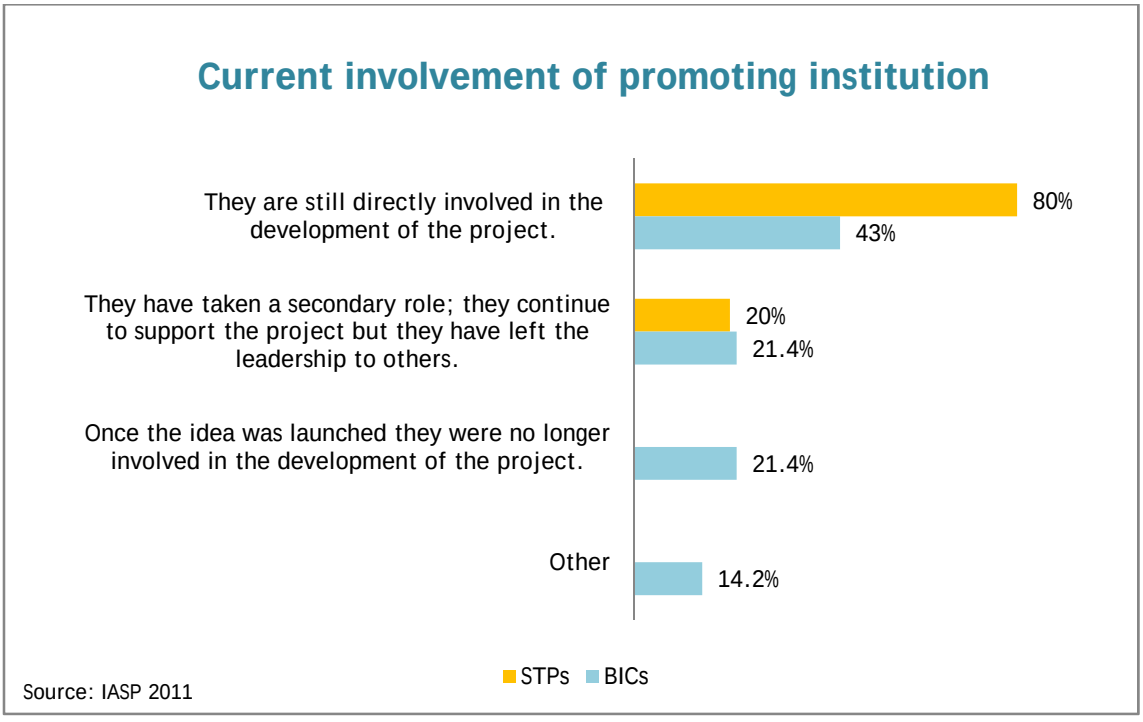


Source: IASP 2011

Question asked:

What is the current involvement of the organisation/institution mentioned in the previous question in the development of your Park?

Analysing the role of the organisations promoting the creation of the STPs and BICs in more detail, and their current involvement in the Park management, we find that they actively participate in the project. It was found that 80% of them play a very active role, and are directly involved in the Park's development, whilst 20% take a secondary role and give the leadership to others.



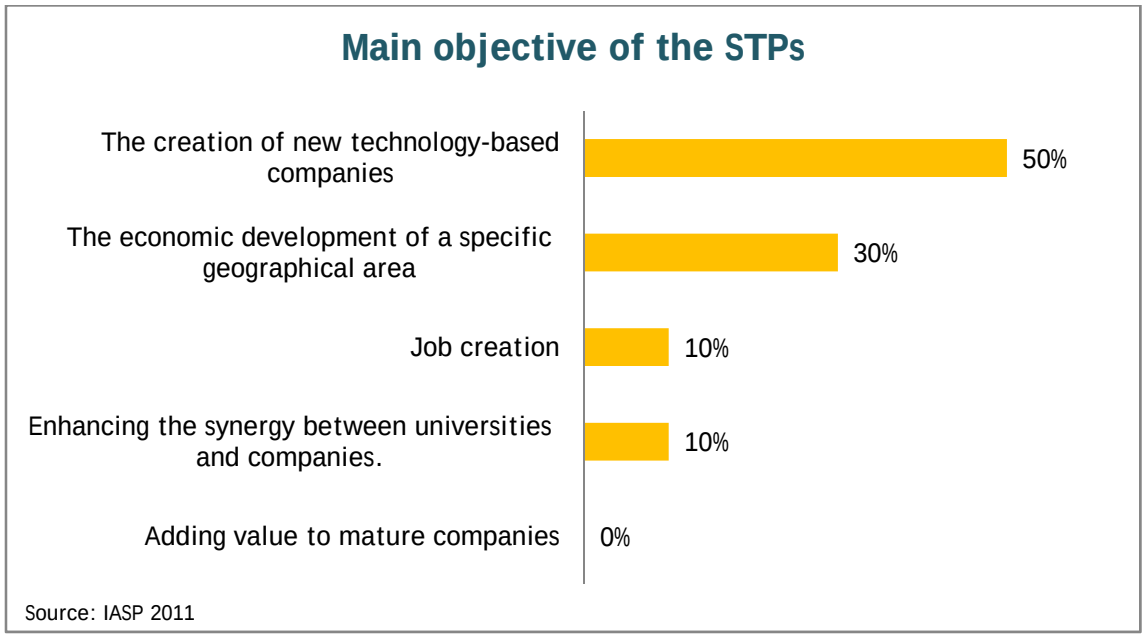
4. SCIENCE AND TECHNOLOGY PARKS IN AFRICA

4.1. Objectives of the STPs

Question asked:

What is the Park's main objective?

The following graph illustrates the core objectives behind the creation of STPs.



50% of those surveyed consider that the Park's main mission is the creation of new technology-based companies; on the other hand 30% of the Parks state that they have a somewhat broader mission in terms of economic development of a given area.

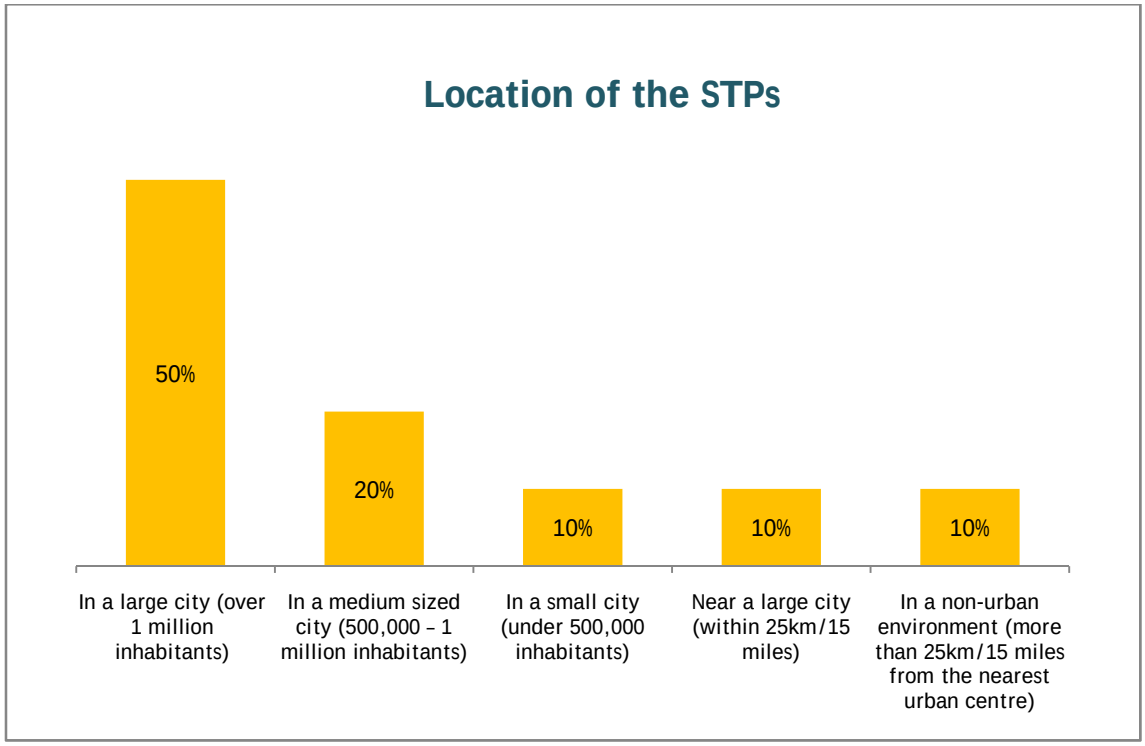
It is interesting to mention that among the possible answers to this question there was the option "adding value to mature companies" but this was not selected by any of the STPs surveyed.

4.2. Location of the STPs

Question asked:

Where is your park (or where will it be) located?

Looking at the chart below, we can see that Science and Technology STPs in Africa are an urban phenomenon. Only 10% of STPs surveyed have been established in a non-urban environment, while the remaining 90% are located in a city. More specifically, the majority (60%) is based in a large city (50%) or near to a large one (10%).



In terms of city size, it is interesting to compare the location of STPs in Africa with STPs in the rest of the world (based on the data collected from the IASP General Survey). In both cases, a large percentage of STPs are located in cities, but it should be pointed out that while in Africa only 10% of STPs were built in small cities, the percentage of STPs worldwide located in small cities increases to a significant 39%.

One possible explanation of this difference may be that the gap between bigger and smaller cities in Africa is greater in terms of technology and economic development

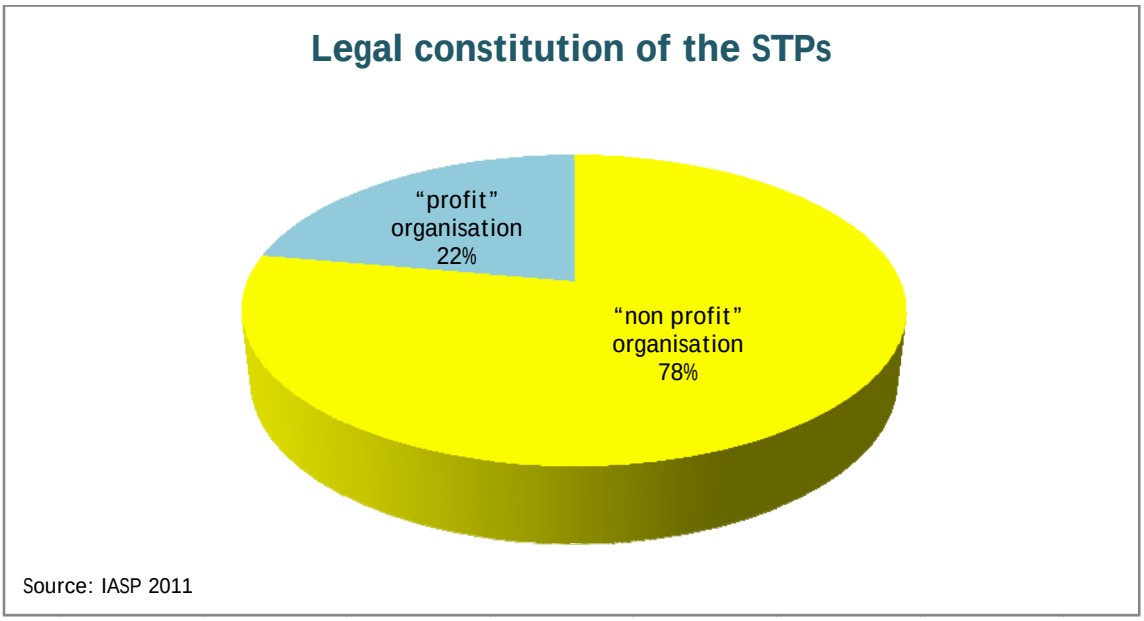
than in other parts of the world. Perhaps smaller cities in Africa are still fundamentally based on an agriculture economy and are linked to the rural world, and only the bigger cities are suitable for hosting technology parks, whereas in other parts of the world medium and small cities have jumped, at least partially, into the knowledge economy and can host these kinds of projects.

4.3. Legal constitution of the STPs

Question asked:

Please indicate which statement applies to your case. (For Parks under planning or construction please indicate what the case will be once it is operational and legally constituted): We are a "profit" organisation/ we are a "non profit" organisation/other situation.

Regarding the legal status of the STPs in Africa, 78% of STPs are non profit organisations.



Source: IASP 2011

4.4. Infrastructure of the STPs

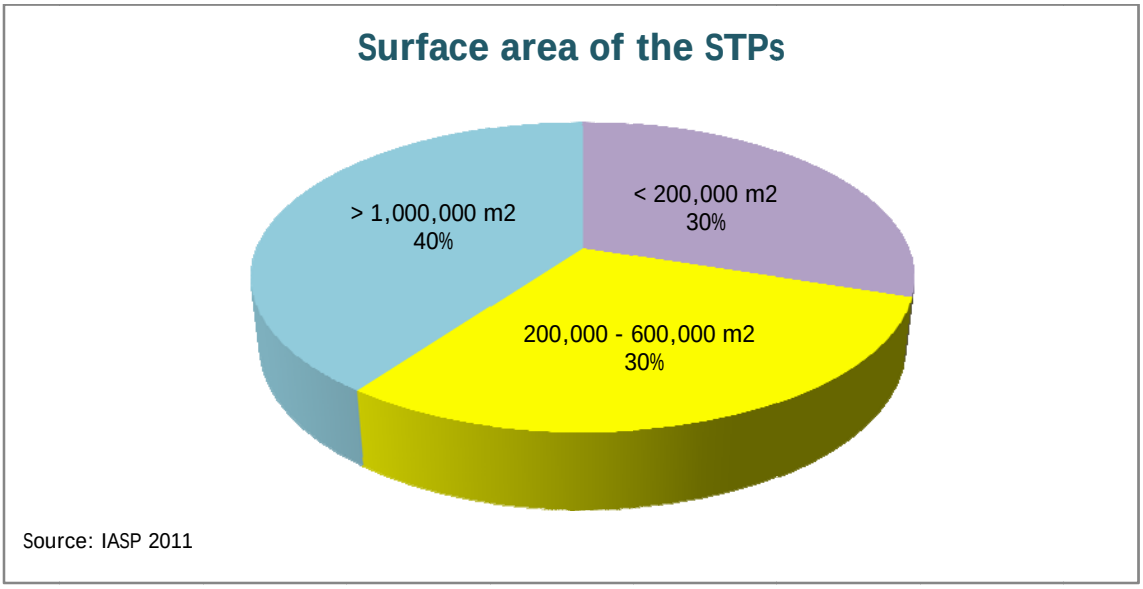
4.4.1. Surface area of the STPs

Question asked:

What is the surface area of your park? (m^2)

By surface area we refer to the totality of the developed land that a STP occupies. This includes the plots where land has already been equipped with necessary infrastructure for immediate or future building, green areas, parking lots, etc.

Among the organisations surveyed we found examples of each type of Park (small, medium and big), although big STPs predominate; 40% have more than 1,000,000m^2.



Source: IASP 2011

Comparing the data obtained from STPs in Africa and the data from the IASP General Survey (carried out among all of our full members from all over the world), we find big differences between these data sets. It can be seen that 40% of STPs worldwide have relatively small surfaces (<200,000 m2), and big Parks (>1,000,000 m2) represent 19% of all STPs, whereas in Africa, as was mentioned before, large STPs predominate.

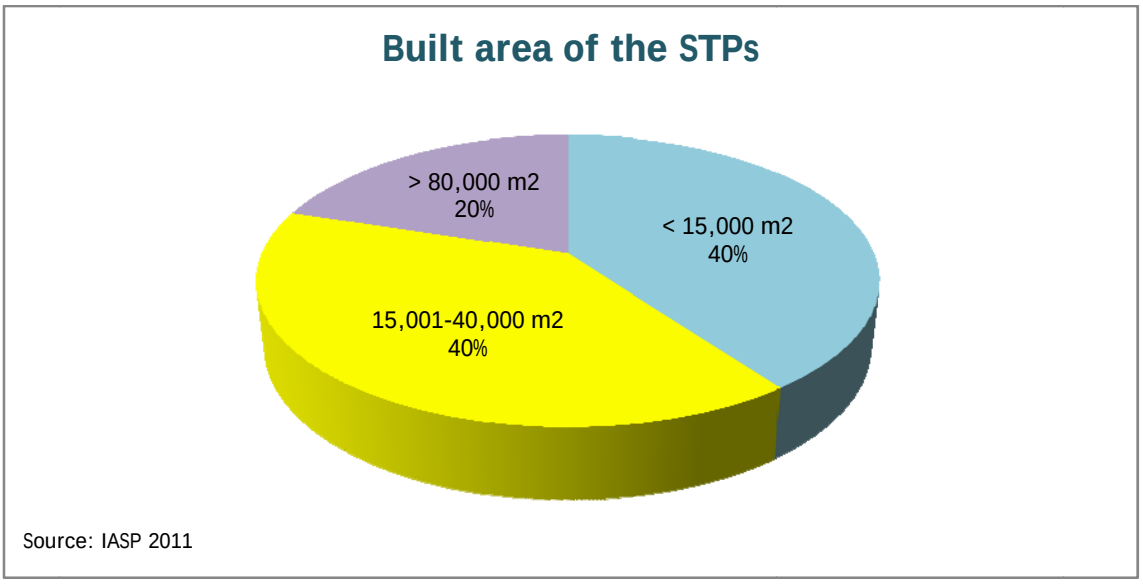
4.4.2. Built surface area of the STPs

Question asked:

What is the built area of your park? (m^2)

Built area refers to all buildings within STPs, including those built directly by the Park or by resident companies and other institutions.

However, the built area is relatively small in comparison with the surface area of STPs if we take into consideration that 40% of STPs have more than 1,000,000m^2 of extension whilst 80% have less than between 15,000m^2 and 40,000m^2 built area.



Source: IASP 2011

Similar to the case of the surface area, there are considerable differences between STPs in Africa and STPs in the rest of the world regarding the built surface area. 40% of STPs surveyed in Africa stated that they have a built area of less than 15,000 m2, whereas only 16% of the Parks worldwide have a similar built surface area.

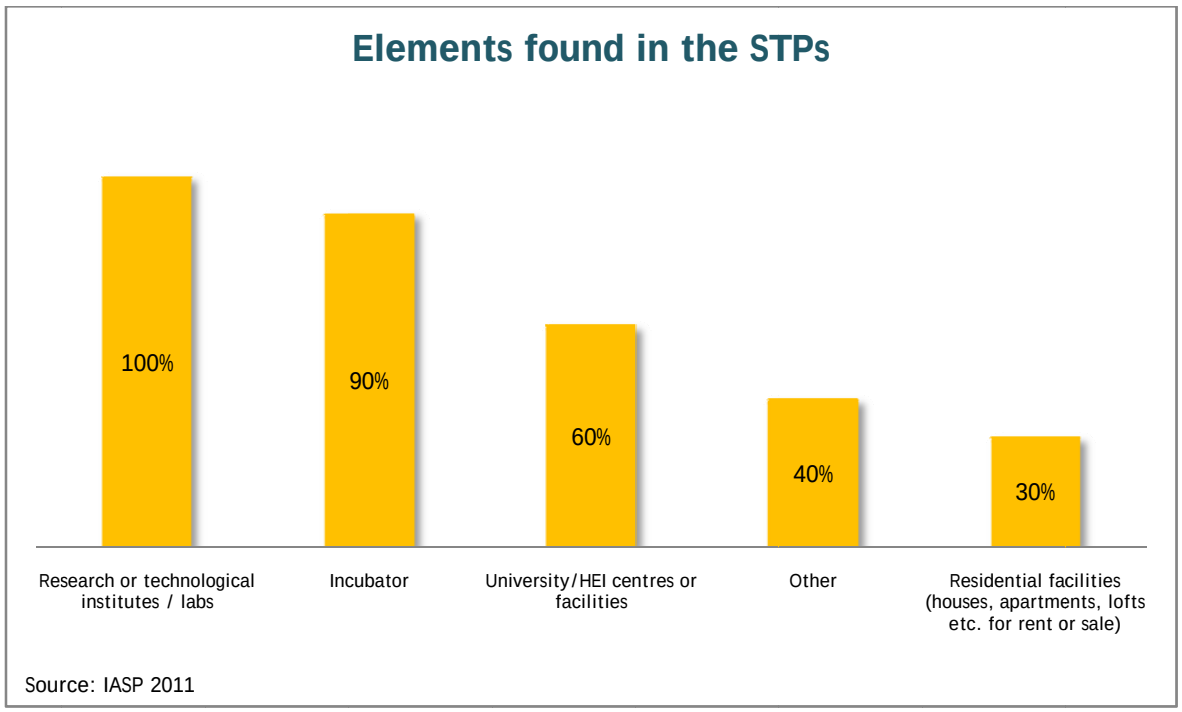
It is interesting to notice the somewhat contradictory figures of the last two graphs: African STPs tend to have a bigger total surface area than STPs in the rest of the world, yet at the same time have a smaller built surface area. It would seem that Parks in Africa start by occupying a big area from the start, even if they only develop a small part of it to begin with.

4.4.3. Main elements of the STPs

Question asked:

Please indicate what elements are or will be present in your Park.

We also enquired about the elements located within the Park's premises. Looking at the answers received it is necessary to highlight the importance of R&D activities: 100% of STPs stated that they had a technology centre. The presence of BICs follows very closely, which are present in 90% of STPs, confirming the well established fact that STPs and BICs are very much intertwined projects; the two sides of the same coin.



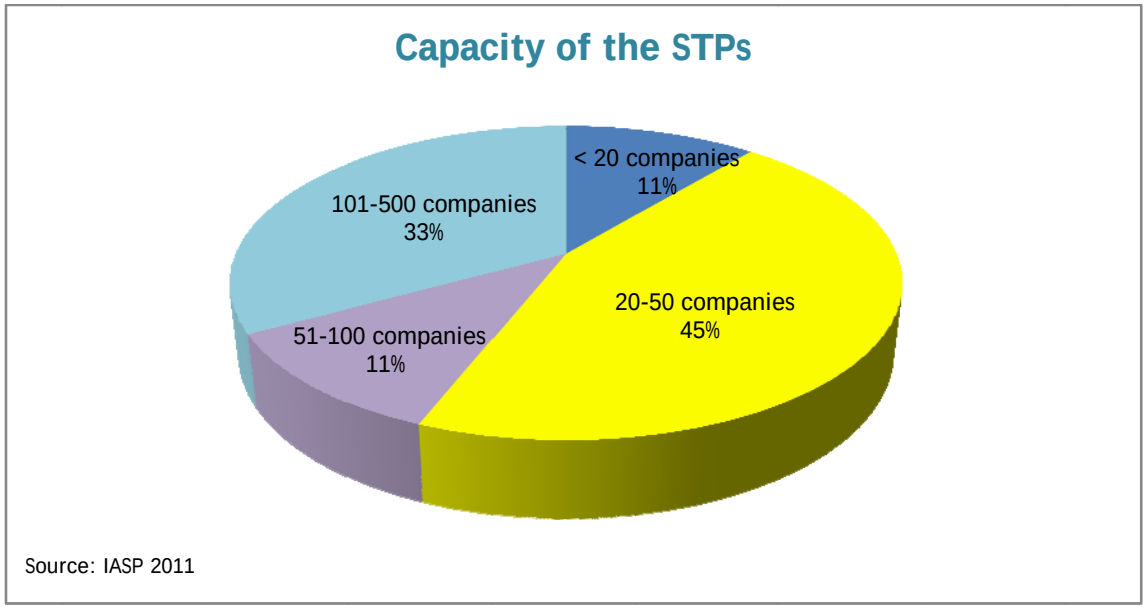
Source: IASP 2011

4.4.4. Capacity of the STPs

Question asked:

What is the capacity of your park in terms of number of companies? (Maximum number of companies that can be located in your park)

The next graph represents the maximum number of resident companies that a Park can host. 45% of African STPs can host from 20 to 50 companies. However, a significant 33% can accommodate up to 500 companies.



Source: IASP 2011

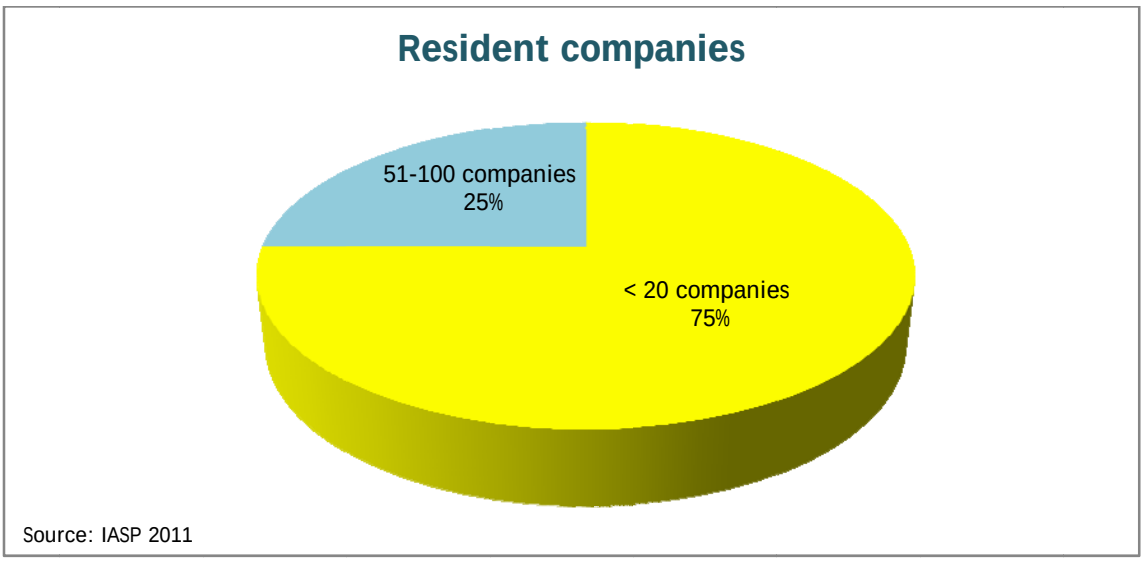
4.5. Resident companies in the STPs

Question asked:

Please indicate the total number of companies located in your park.

STPs in Africa have a small number of companies located in their built area: 75% have less than 20 while 25% have from 51 to 100.

Even though 33% of the STPs surveyed, as we saw in the previous chart, have been designed to host more than 100 companies, there was not one response to this survey stating that they had this amount of companies located in it.

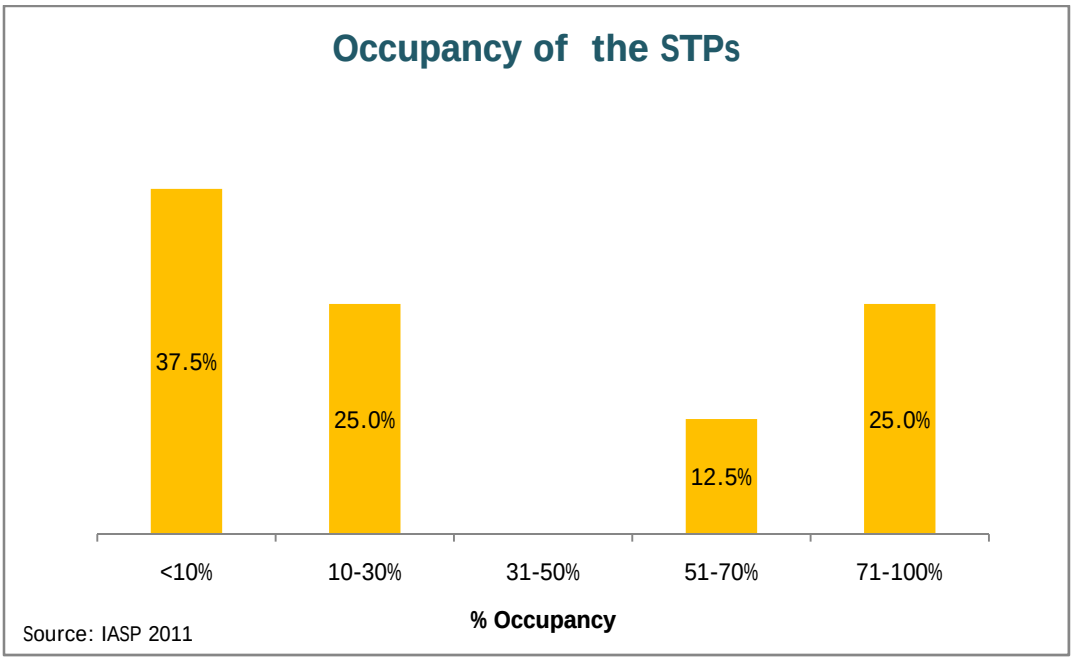


The first obvious conclusion is that African STPs still have a low occupancy rate. But considering the relative youth of the Park movement in the continent it might be more accurate to formulate the conclusion in a different way, namely: African STPs have a large potential for growth in terms of resident companies.

4.5.1. Occupancy of the STPs

In the two previous sections we spoke about two things. Firstly, the capacity of the STPs (which can be understood as the total number of companies a Park can host) and secondly, the STP occupancy (which refers to the number of resident companies that are already established in their premises).

As shown in the following graph, 37.5% of STPs have a very low occupancy rate, less than 10%, whereas 25% are using between 10% and 30% of their capacity. This means that more than half of the STPs surveyed (62.5%) are using only up to 30% of their total capacity. On the other hand we find 25% of STPs surveyed have a high occupancy rate, between 71% and 100%.



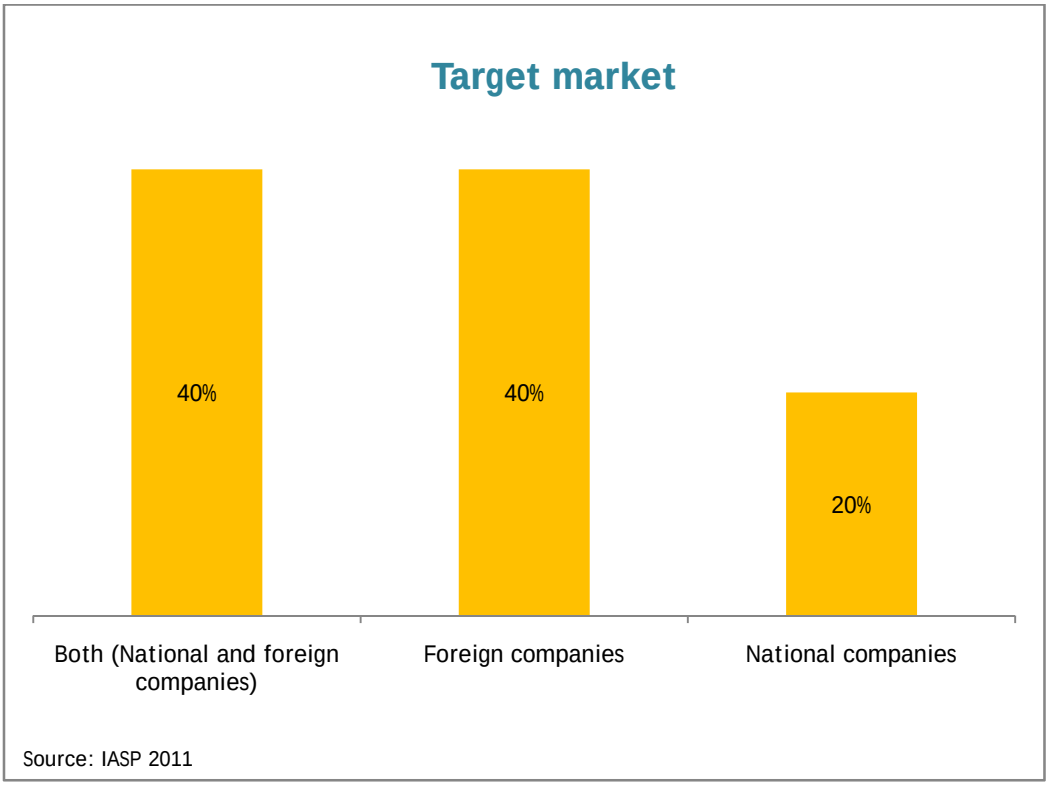
4.5.2. Target market for the STPs

Question asked:

Is your park working to attract foreign companies or do you focus mostly on national companies? If one of your objectives is to attract foreign companies, what kinds of firms are targeted? (E.g. Multinationals, companies from other African countries, etc.)

When asking about their target market, specifically regarding the main marketing objective (geographically speaking), we find that a large percentage of STPs (40%) focus on attracting foreign companies , and 40% affirm that they are interested in attracting both national and foreign companies.

The following graph shows the importance of international companies for the STP industry in Africa, showing that 80% of African STPs attach a high priority to attracting foreign companies.



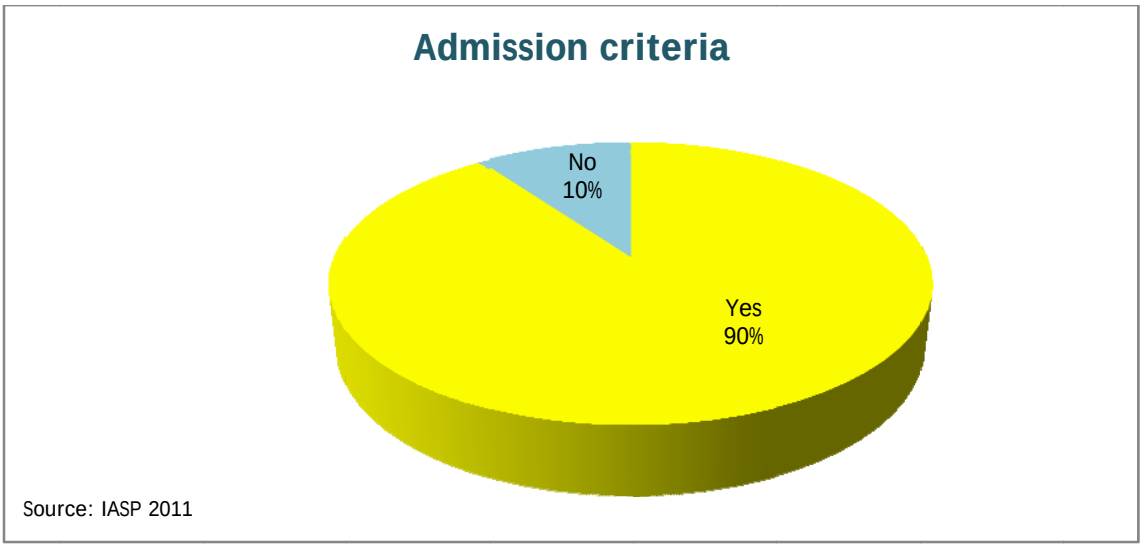
Source: IASP 2011

4.5.3. Admission criteria of the STPs

Question asked:

Does your Park apply selection criteria for admitting companies?

Only 10% of STPs state that no requirements have been established by the management team in order to evaluate the suitability of companies interested in developing their activities within the Park.



Source: IASP 2011

4.6. Networking of the STPs

Question asked:

Does your organisation collaborate with other entities, in your country or abroad that promote innovation, technology transfer, company creation such as universities, governmental organisations, associations, etc.? What kind of collaboration do you have?

100% of the STPs surveyed have developed connections at local and international levels with other entities that promote innovation, technology transfer and company's creation.

In order to find out more about the nature of the networks, the STPs were asked about the kind of collaboration they maintain with said institutions.

Among the answers received it is interesting to note two concepts: the definition of network as a "Multi-helix cooperation" and the inclusion in the established networks of "Open Innovation platforms".

These concepts may give us a general idea of the kind of networks established by African STPs; they are composed of a range of different actors from various sectors of society and participate in a collective exchange of knowledge, thus they are involved in a continuous learning process.

All STPs surveyed state that they have links with the university, the government and the business community at a local level. A large proportion of the African STPs answered that they have established formal relations (by signing MOUs and agreements) with universities and R&D centres, as well as links with Science and Technology STPs at an international level.

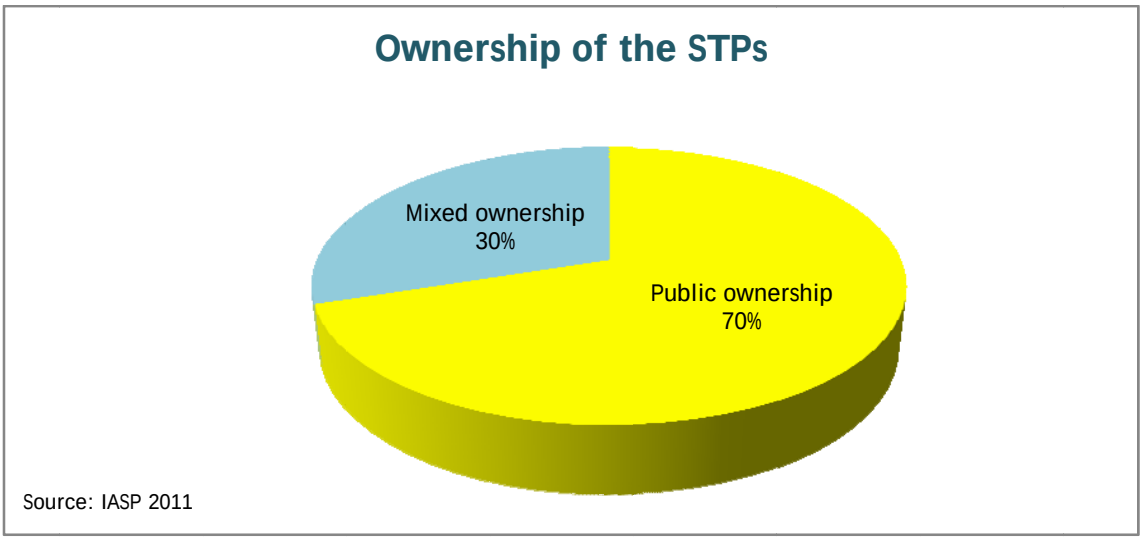
4.7. Ownership and Governance of the STPs

4.8. Ownership of the STPs

Question asked:

The ownership of your Park is: public / private /mixed.

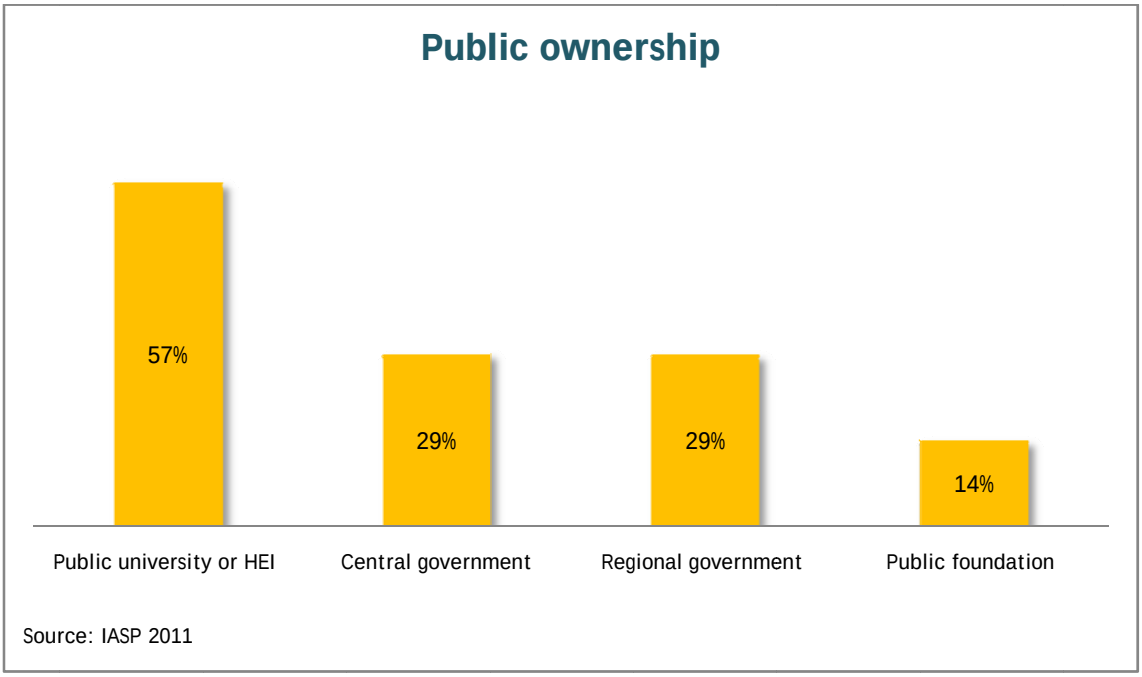
Governments and public administrations are the main agents behind STPs in Africa. In fact, 70% of STPs are owned by public organisations.



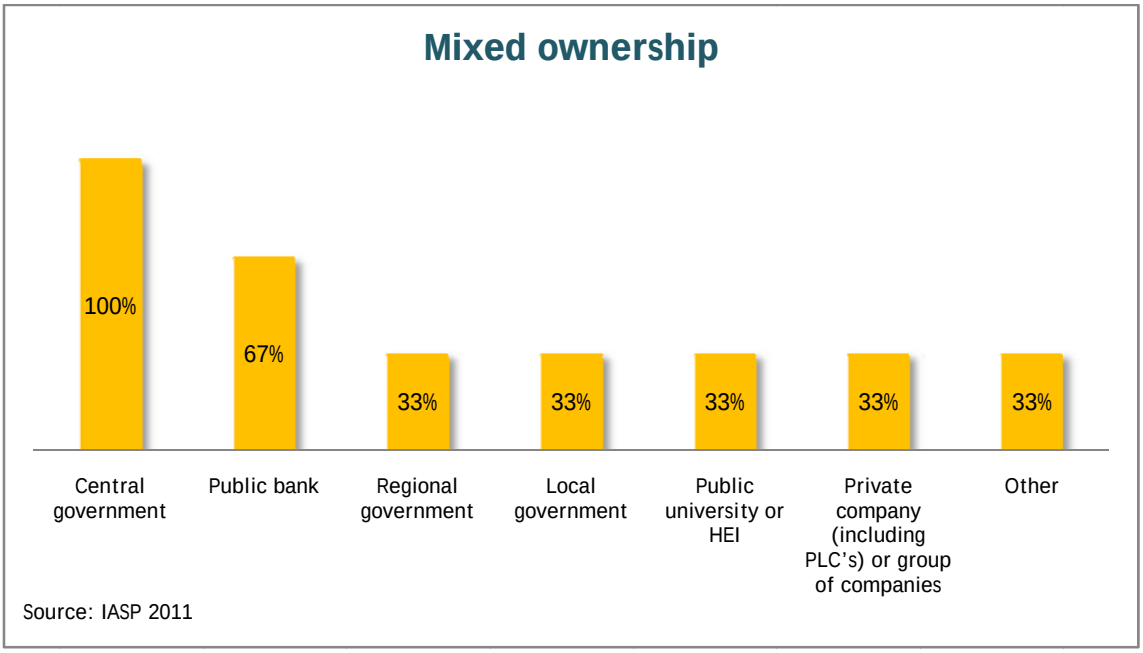
As we can see in the graph above, 30% of STPs stated that they have a mixed ownership. In order to get further information about this kind of ownership, the surveyed Parks were asked "Who had the majority?", and the results obtained strengthened the importance of the public sector (central/regional/local governments, public banks and public universities) in the STP industry in Africa, since they are the major stakeholders of the Park's ownership for all STPs surveyed with mixed ownership.

A wider vision of the institutions involved in the ownership of STPs surveyed is reflected in the following graphs.

In the case of STPs with public ownership, there are two main entities that participate in the ownership of STPs: government (central and regional) and university; both institutions are present in almost 60% of the STPs surveyed.



On the other hand, for those STPs with mixed ownership, central government plays a very important role; it is present in 100% of STPs, followed by the public bank, present in 67% of cases. In the case of private ownership (private university, private foundation or private company) the only option indicated by STPs as being an owner was that of private company or group of companies (33%).


Mixed ownership
100%
67%
33%
33%
33%
33%
33%
Central government
Public bank
Regional government
Local government
Public university or HEI
Private company (including PLC's) or group of companies
Other
Source: IASP 2011

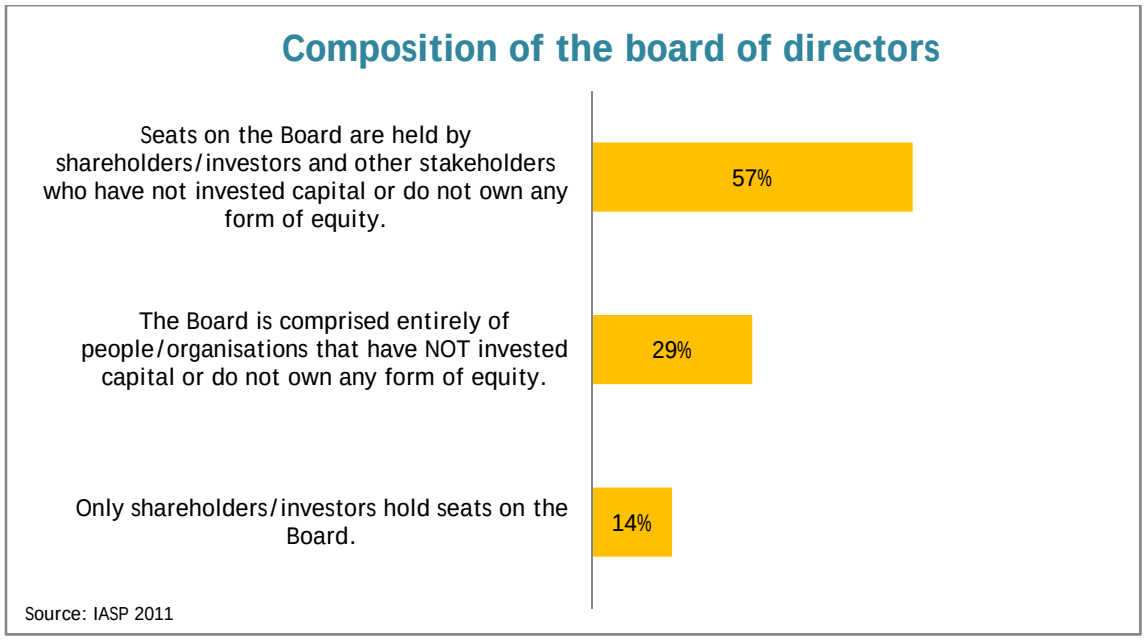
4.9. Governance of the STPs

4.9.1. Governing bodies of the STPs

Question asked:

With regards to the composition of your Parks' Board of Directors (or equivalent governing body)

All STPs surveyed affirm that they have a specific governance structure. It is interesting to notice that 29% of them have governing bodies which do not include representatives from the actual shareholders, that is, from organisations that have already invested in the Park or own some form of equity.



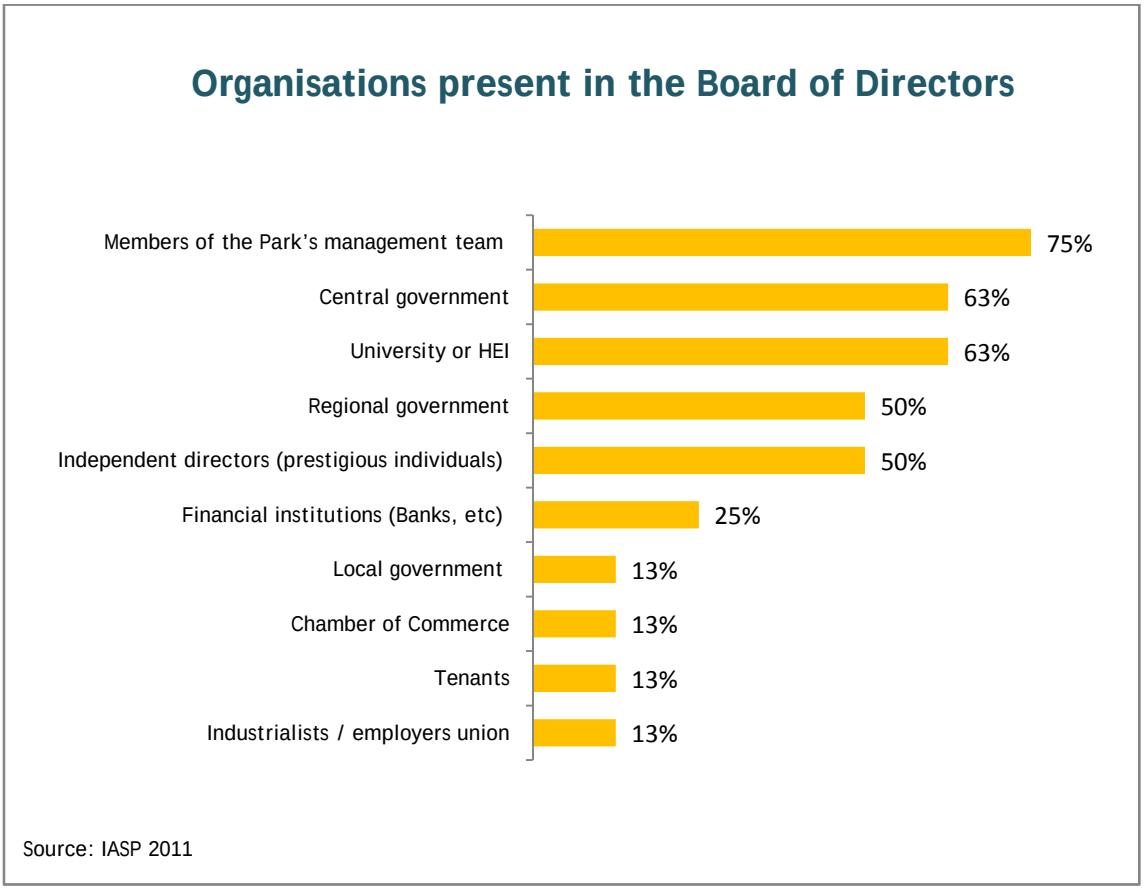
Question asked:

Which organisations/institutions have representatives on your Board of Directors (or equivalent governance body)?

The breakdown of institutions present in the board of directors in Africa is shown in the next graph.

Members of the Park's management team are represented in the board of directors in 75% of STPs, while both central government and university are presented in 63% of cases.

The significant presence of independent directors should also be highlighted, who are present in 50% of STPs' governing bodies.



Source: IASP 2011

4.10. Budget and funding of the STPs

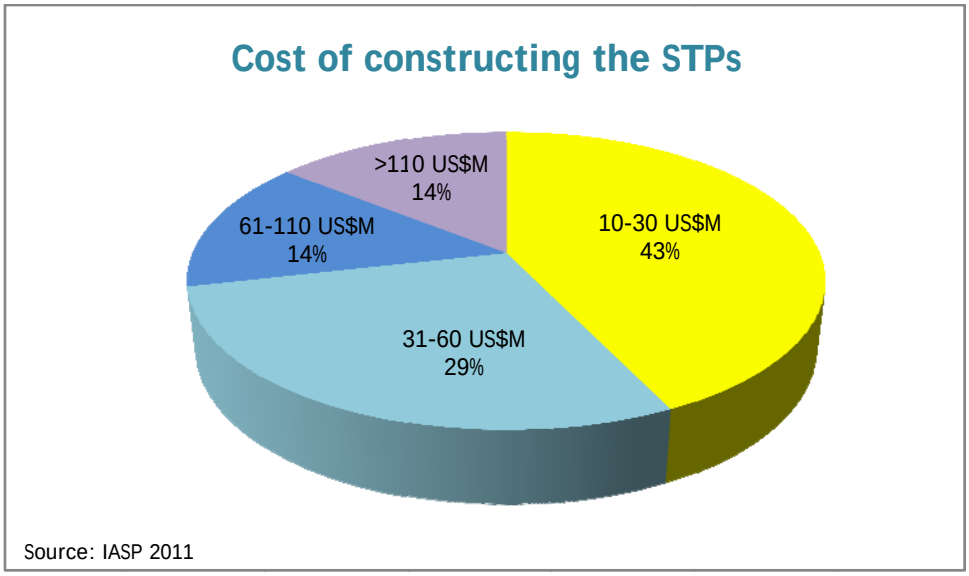
This section intends to analyse the financial issues related to the construction and management of STPs in Africa. The data presented should be read taking into account the large differences between STPs within the African continent.

4.10.1. Cost of constructing the STPs

Question asked:

What is the cost of the construction of your Park (in US$)? (From the beginning of its construction until the day that it became operational and open for companies. Please include the cost or value of the land as well as the infrastructure and facilities built up until the opening day).

Information about the cost of constructing a Park has been facilitated by the STPs surveyed, from the beginning of its construction until the day that it became operational and open for companies. According to the answers received, the costs vary from US$ 10,000,000 to US$ 2,000,000,000. The following graph shows the information grouped in intervals. For 43% of those surveyed, the cost of creating a Park ranged between US$ 10,000,000 and US$ 30,000,000.



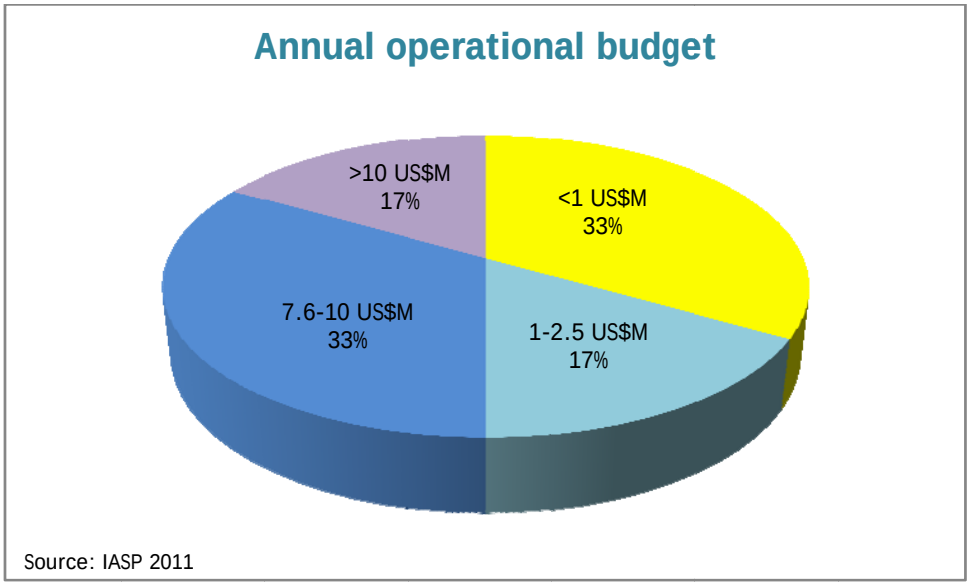
Source: IASP 2011

4.10.2. Annual operational budget of the STPs

Question asked:

What is your annual operational budget? (in US$) (For Parks under planning and construction please make an estimate of the operational budget for the first year).

33% of STPs are in the low budget band, under US$ 1,000,000 whereas another 33% have an annual operating budget that ranges between US$ 7,600,000 to US$ 10,000,000.

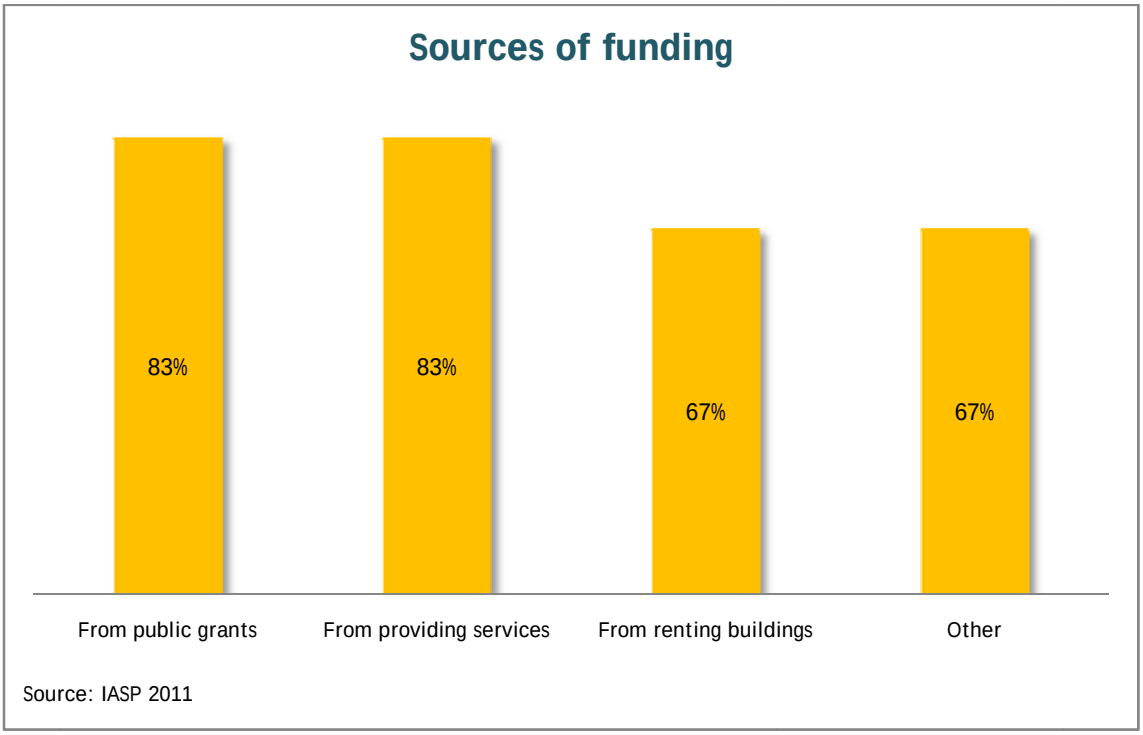


4.10.3. Sources of funding of the STPs

Question asked:

Please help us to understand your Park's business model: Where does your income come from and in what percentage? (For Parks under planning and construction please make an estimate).

In order to better understand the financial flow of the Park we enquired about the financing sources. The economic resources came mainly from two sources: public grants and services provided (83%). Another important source of income is the rent of buildings which contributes to the institution's income in 67% of STPs.



Source: IASP 2011

Although the questions in the survey covered this, it wasn't possible to obtain enough information to fine-tune this data so as to present a more accurate breakdown of the resources income in African STPs.

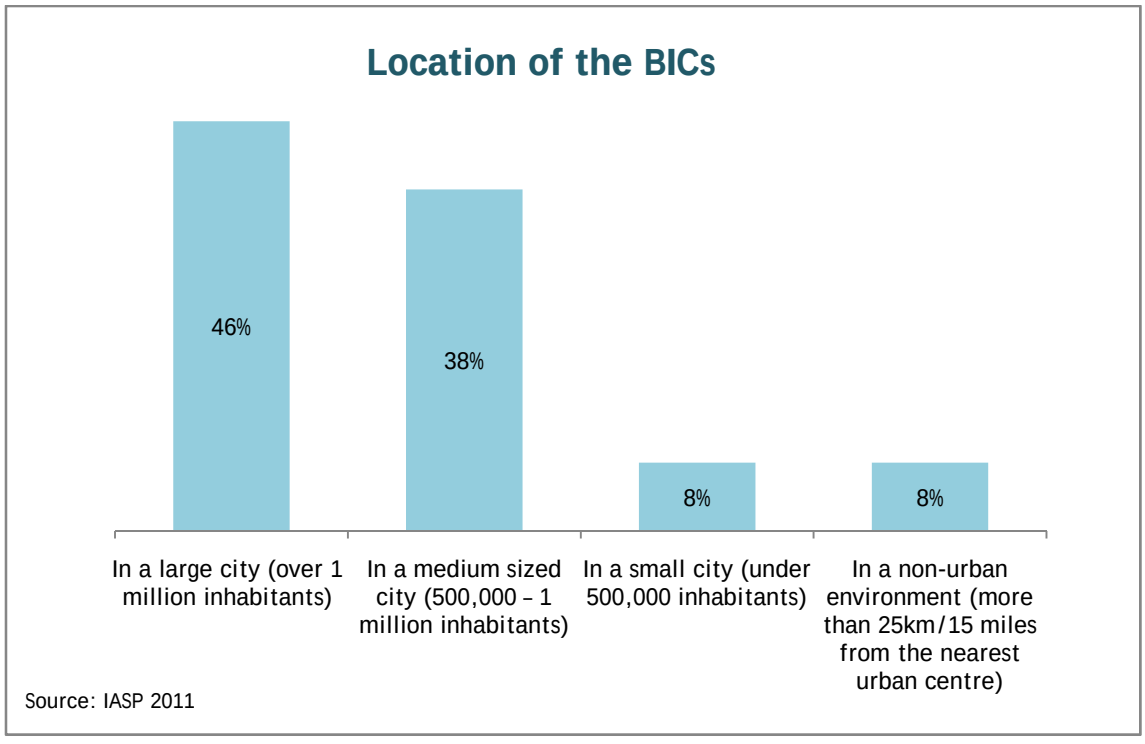
5. BUSINESS INCUBATORS IN AFRICA

5.1. Location of the BICs

Question asked:

Where is your organisation located?

BICs, as well as STPs, can be catalogued as urban creatures. In the graph below we see that 46% of BICs are located in large cities with over 1,000,000 inhabitants, whereas 38% are based in a medium sized city, with between 500,000 to 1,000,000 inhabitants.



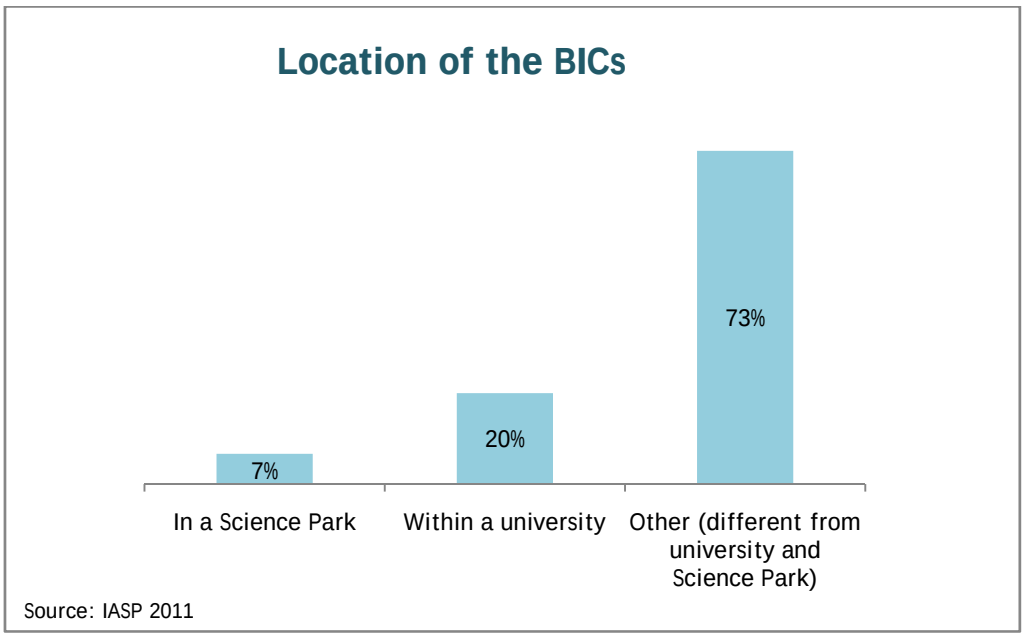
Source: IASP 2011

As well as analysing the location of BICs with reference to their proximity to an urban or non-urban environment, we were interested to know if the BICs were located in a university or a Science Park.

Question asked:

Please let us know more details about your location to complement the previous question.

Only 7% of the BICs that answered the questionnaire were located in a Science Park, whereas 20% of them carry out their activities within a university. The majority (73%) state that they are located in "other" places and have their own premises. However, it is very important to underline that 90% of STPs in Africa have at least one BIC (as is the case in most STPs throughout the world), which means that Parks and Incubators are indeed highly intertwined projects. The conclusion to be drawn is simply that most African STPs have incubators, just like their peers throughout the world, but there is also a large number of incubators outside the Parks.



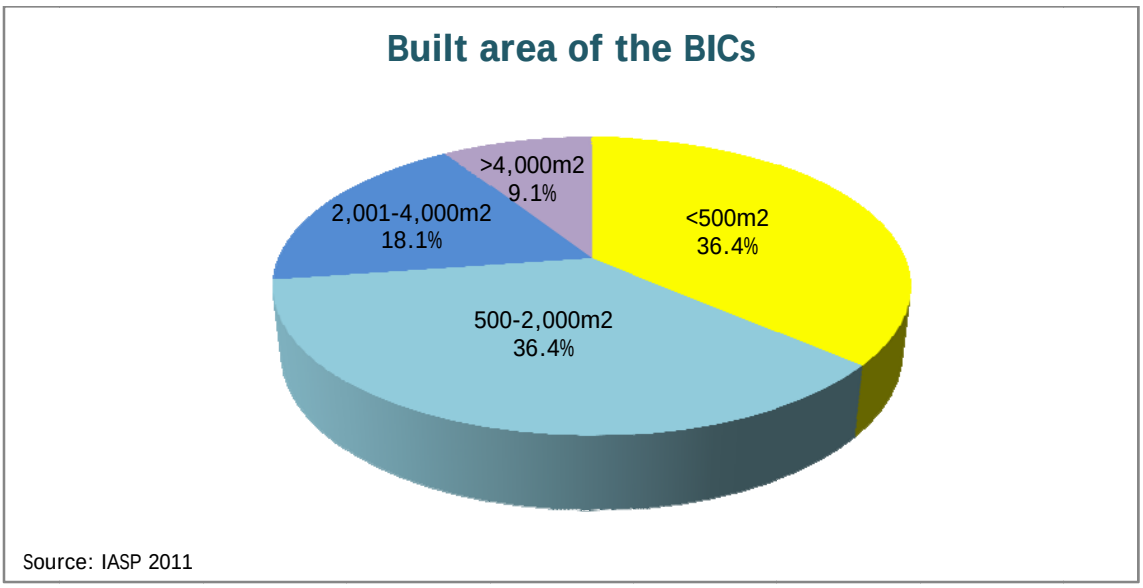
5.2. Infrastructures of the BICs

5.2.1. Built area of the BICs

Question asked:

What is the built area of your Incubator? (m^2)

The BICs in Africa have relatively small infrastructures if we take into account that 36.4% of them host their tenant companies in less than 500m^2, while another 36.4% of BICs responded that they are built in an area between 500m^2 and 2,000m^2.



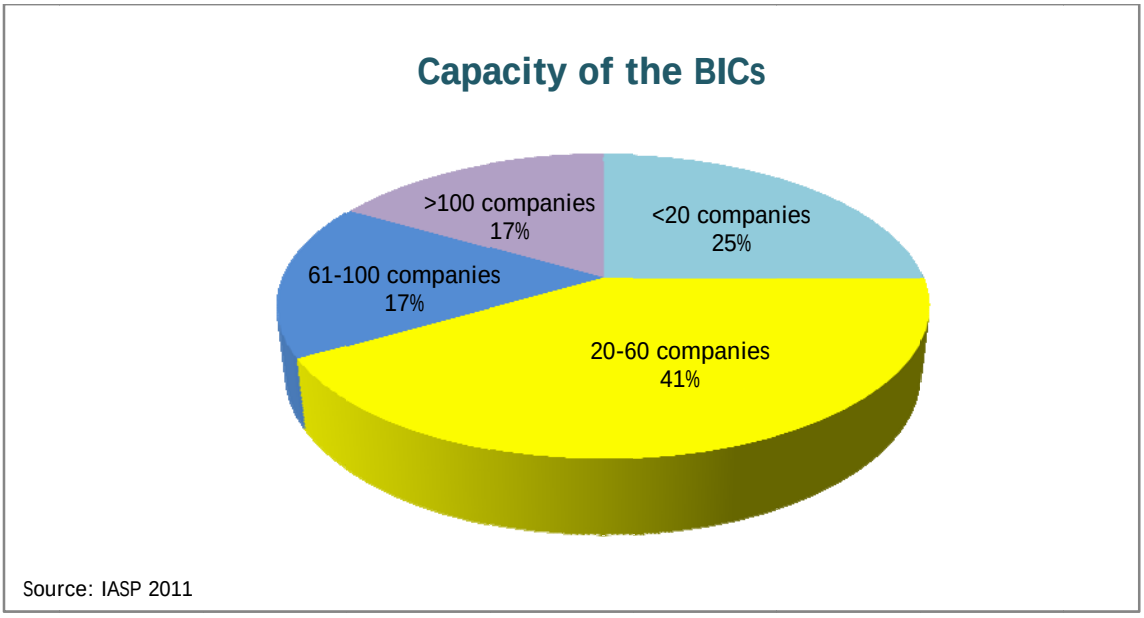
Source: IASP 2011

5.2.2. Capacity of the BICs

Question asked:

Maximum number of companies that the incubator can host.

The next graph shows the capacity of BICs, which can be understood as the total number of companies that it can host. In accordance with the size (built area) shown in a previous graph, 66% of BICs surveyed can host up to a maximum of 60 companies, where 25% has space for less than 20 companies.



Source: IASP 2011

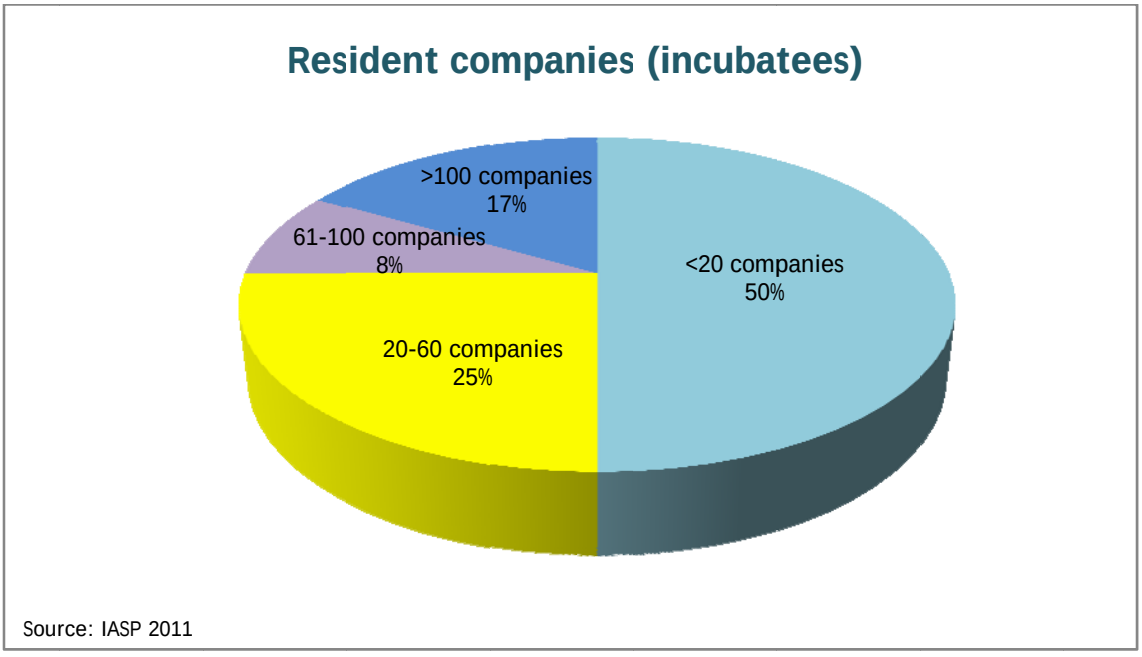
5.3. Resident companies of the BICs (incubatees)

Question asked:

How many companies does your incubator host now?

Currently 50% of BICs surveyed are incubating less than 20 companies. On the other hand 17% have more than 100 incubatees.

It is also interesting to highlight that a significant 25% of BICs have between 20 and 60 companies on their premises. This percentage added to the 50% of BICs with less than 20 companies means that a large majority (75%) of the African BICs are still quite small in terms of incubated companies, with a maximum of 60 incubatees.



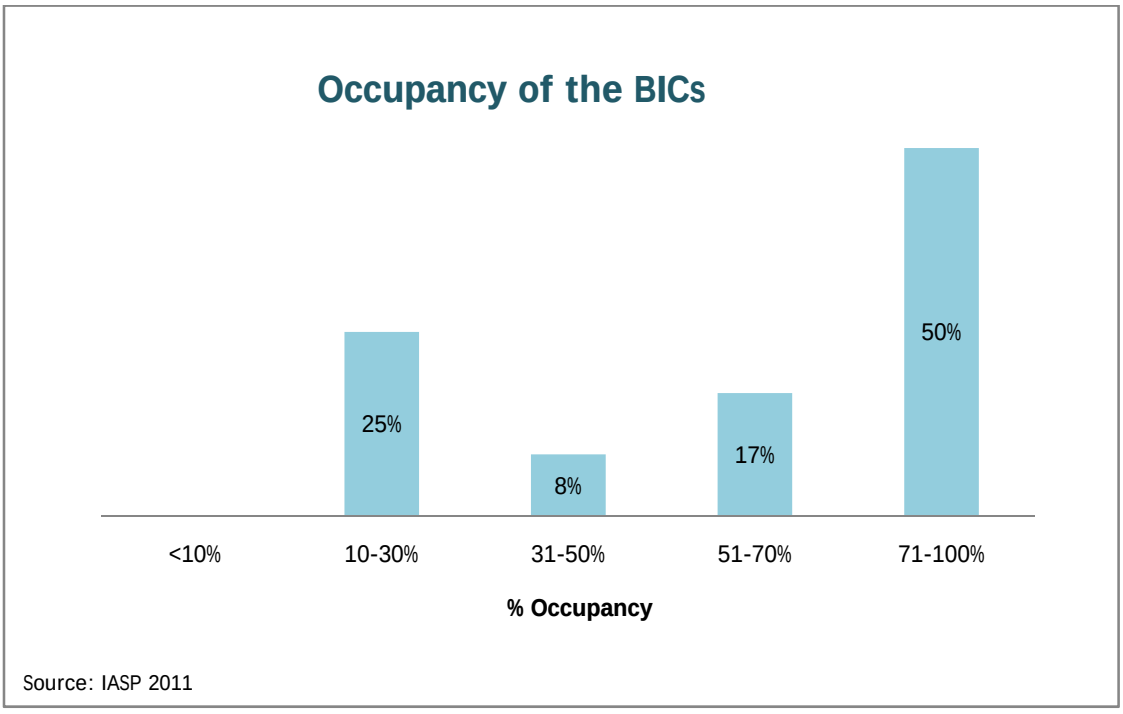
Source: IASP 2011

5.3.1. Occupancy of the BICs

In order to know more about the BICs' activities and their level of productivity we have calculated the occupancy rate (comparing the number of companies hosted at the moment and the number of companies that can be hosted in total).

Despite the fact that African BICs are relatively small in terms of the number of incubated companies, their occupancy rate is quite high, as shown by the fact that 50% of them are being run at more than 70% of their maximum capacity and another 17% have occupancy rate between 51% and 70% of their capacity.

The graph below shows the percentage of occupancy in the incubators.



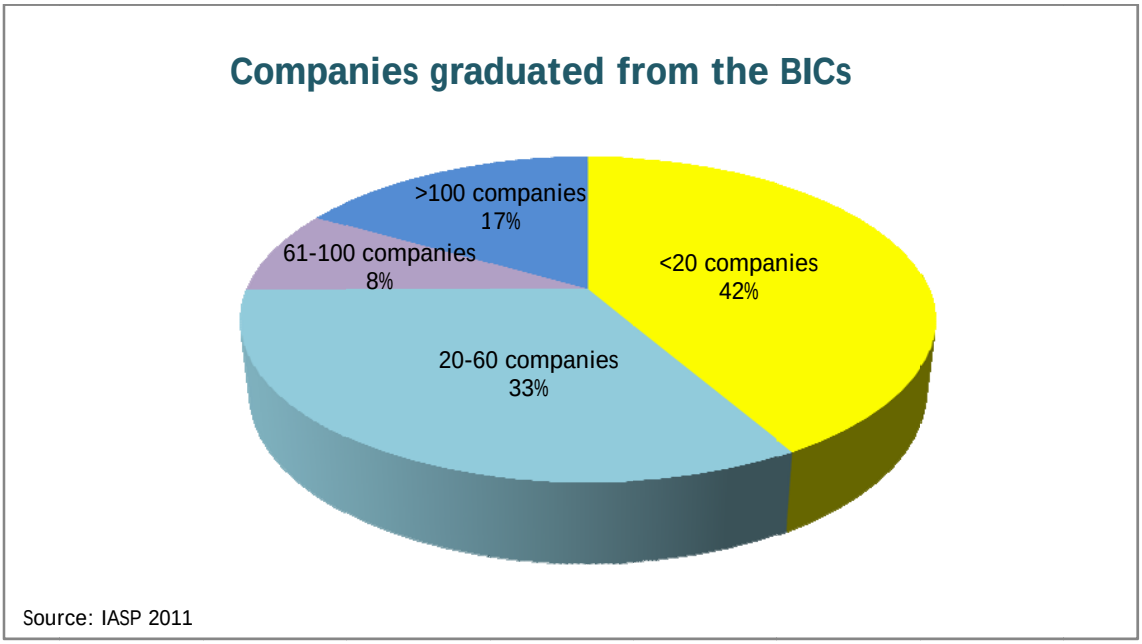
Source: IASP 2011

5.3.2. Companies graduated from the BICs

Question asked:

Total number of graduated companies since its creation.

The following chart shows the breakdown of graduated companies of African BICs since their creation. These figures seem to be proportionate with both the size of African BICs and their relatively short history, and are expected to grow as time goes by and the projects gain experience and maturity.



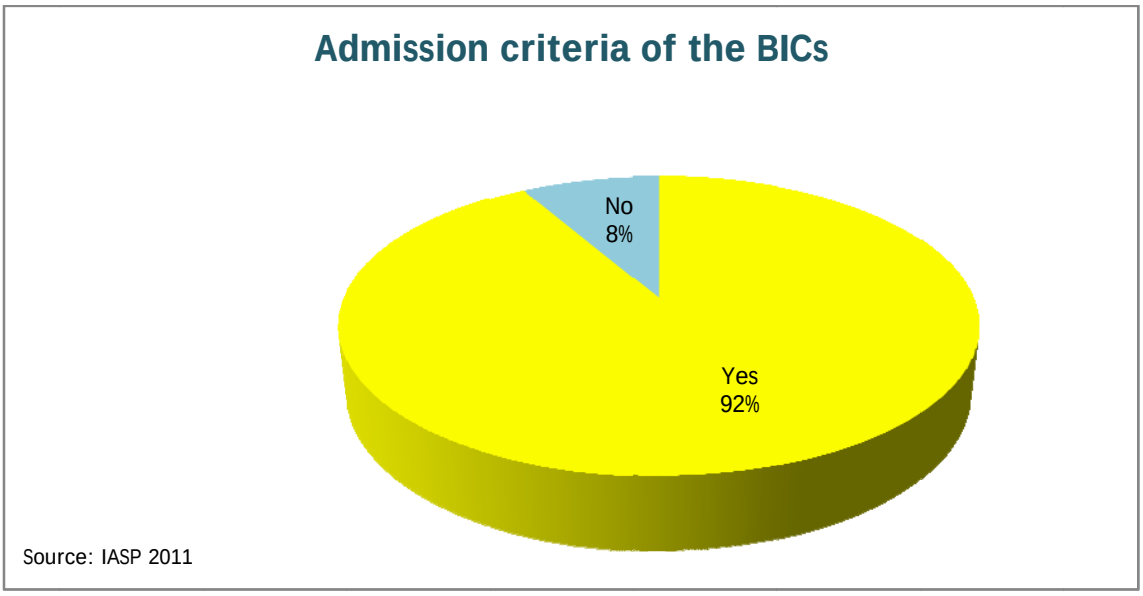
Source: IASP 2011

5.3.3. Admission criteria of the BICs

Question asked:

Does your Incubator apply selection criteria for admitting companies?

Only 8% of BICs are open to every kind of company without having established any prior requisites. The rest of BICs (92%), the majority, have admission criteria in order to evaluate the suitability of the candidate companies to be incubated in their premises.



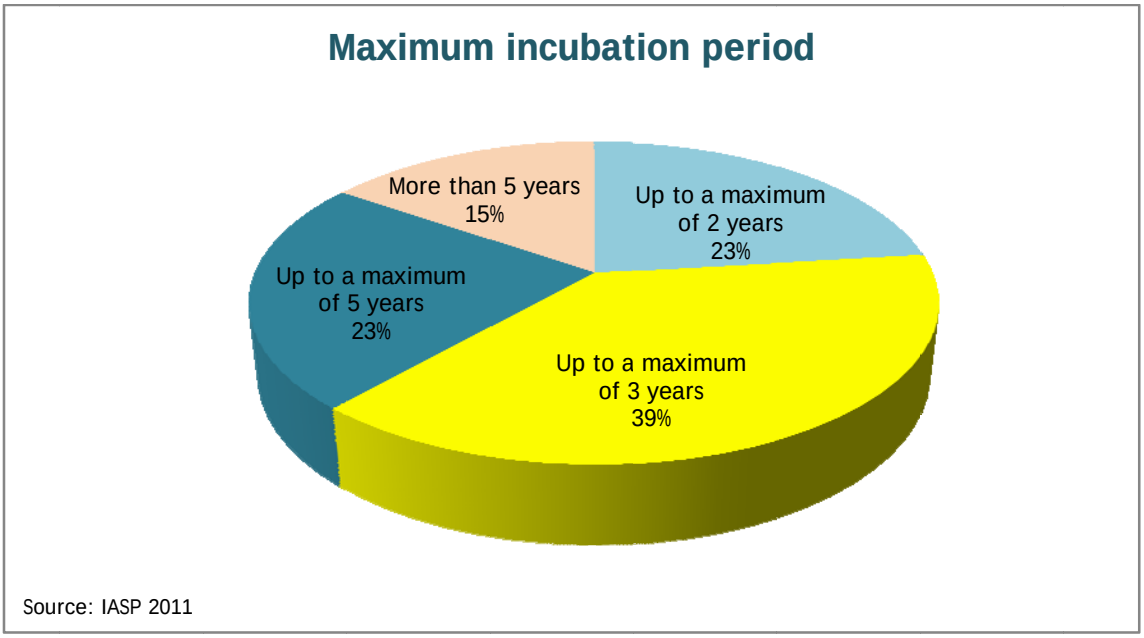
The specialisation in a particular sector, business feasibility of the project, viable product, innovation element and added value are common admission criteria for almost all BICs.

5.4. Maximum incubation period

Question asked:

What is the maximum incubation period that you grant to your incubatees?

Incubating intends to support businesses at certain stages of their development, therefore, in accordance with its objectives, it is limited in time. The maximum incubation period for 39% of BICs surveyed is up to a maximum of 3 years, after this time companies will be requested to leave the Incubator.



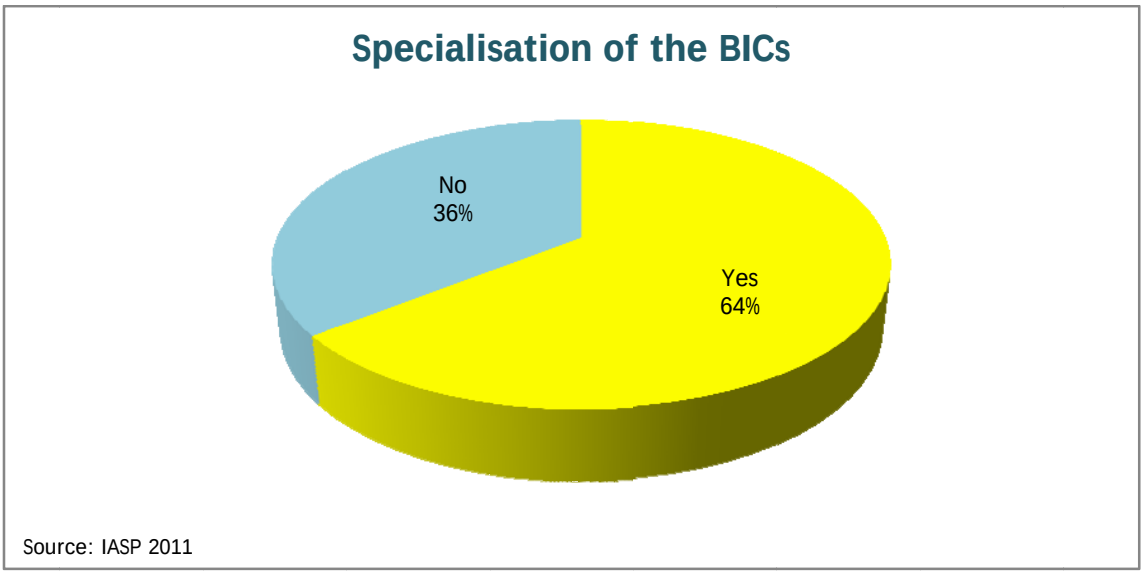
Source: IASP 2011

5.5. Specialisation of the BICs

Question asked:

Does your incubator specialise in any technology sector?

69% of BICs are specialised in a given technology sector. Information and communication technology (ICT), agriculture and agro-processing and chemicals are some of the main sectors in which the BICs surveyed are specialised.



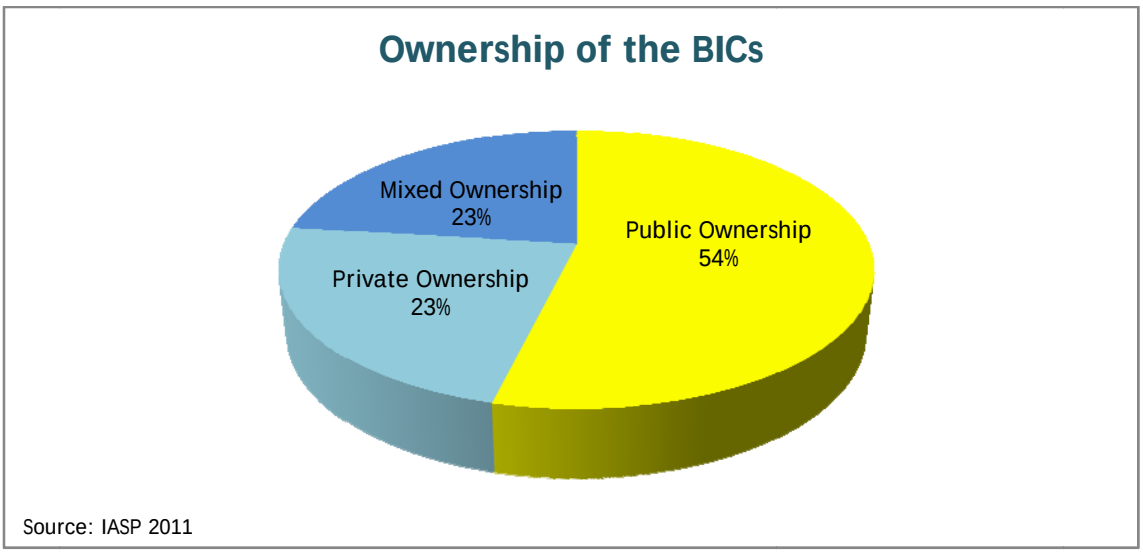
Source: IASP 2011

5.6. Ownership of the BICs

Question asked:

The ownership of your Incubator is: public / private / mixed.

Although the public sector is the owner of 54% of BICs surveyed, it is important to point out the role of the private sector; 46% of BICs are owned, or partially owned, by a private company.



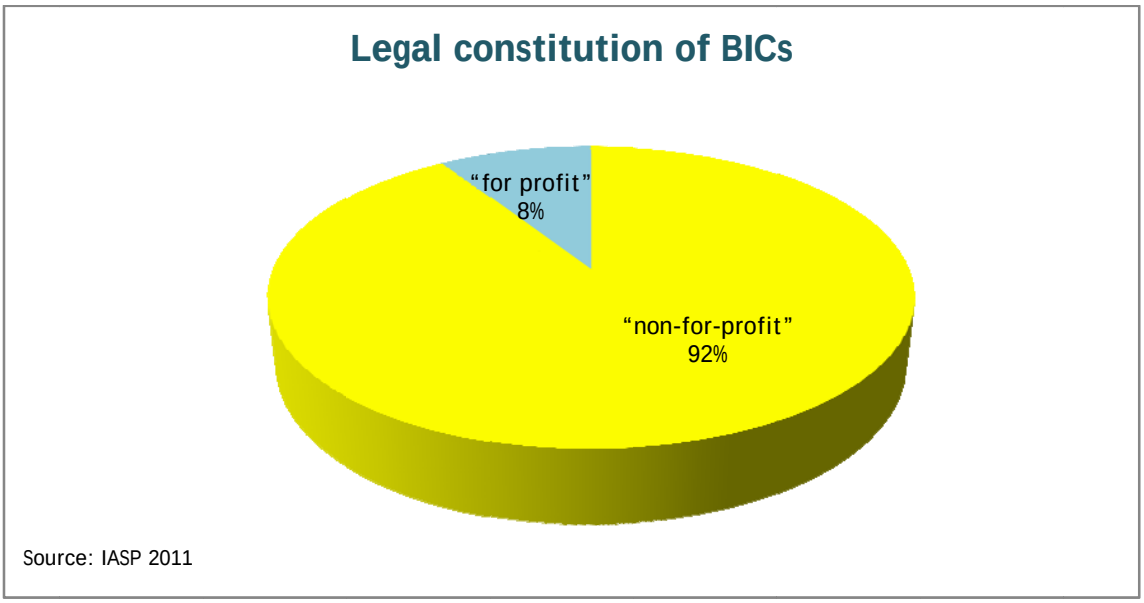
Source: IASP 2011

5.7. Legal constitution of the BICs

Question asked:

Please indicate which statement applies to your case. (For incubators under planning or construction please indicate what the case will be once it is operational and legally constituted): We are a "profit" organisation/we are a "non profit" organisation/other situation.

When examining the BICs surveyed we find that the majority (92%) of them characterise their incubator activity as being not for profit.



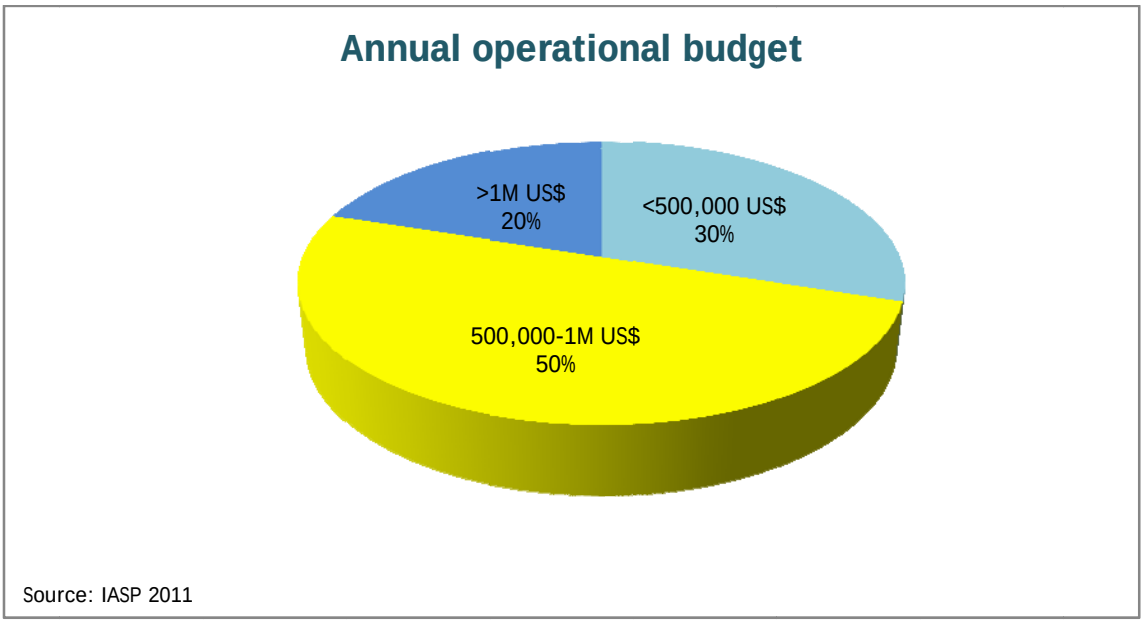
5.8. Budget and funding of the BICs

5.8.1. Annual operational budget

Question asked:

What is your annual operational budget? (in US$) (For Incubators under planning and construction please make an estimate of the operational budget for the first year).

The most frequent operational budget for BICs ranges from US$ 500,000 to US$ 1,000,000. It should be noticed that 30% of BICs operate with an annual budget lower than US$ 500,000.

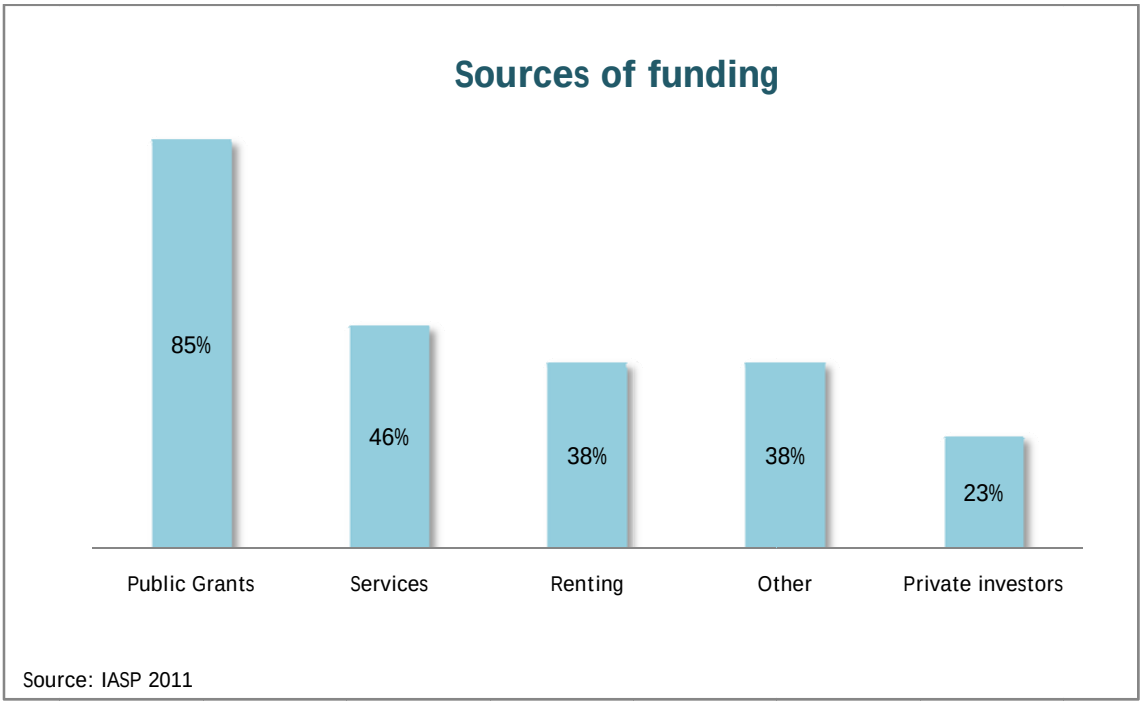


5.8.2. Sources of funding of the BICs

Question asked:

Please help us to understand your Incubator's business model: Where does your income come from and in what percentage? (For Incubators under planning and construction please make an estimate)

The incomes of BICs come mainly from public grants. The services provided and the office rental space constitutes other important sources of funding.



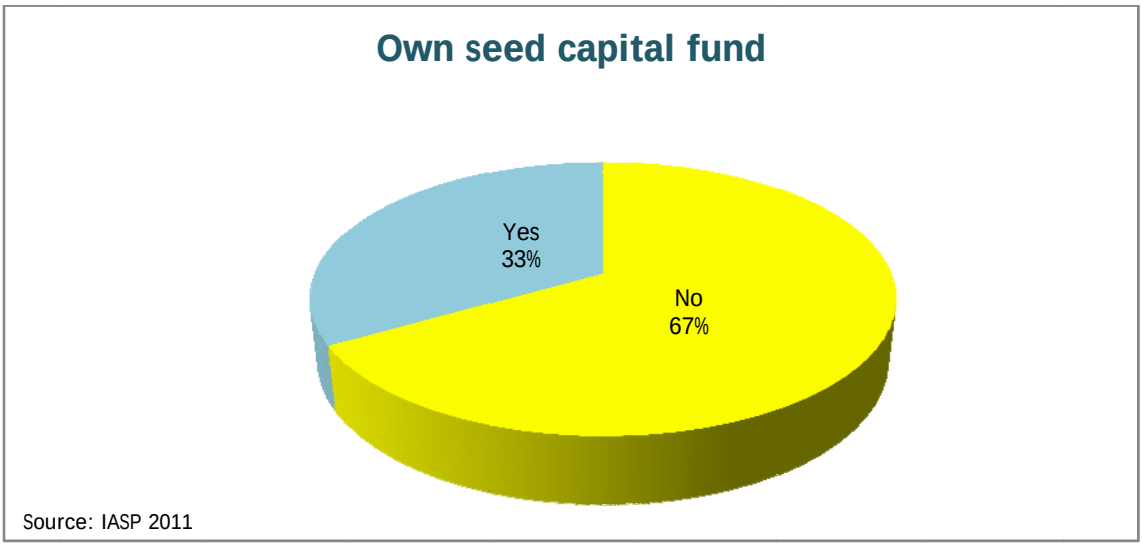
Source: IASP 2011

5.8.3. Seed capital funds in the BICs

Question asked:

Does your Incubator or have its own seed capital fund?

A significant 33% of BICs stated that they have their own seed capital fund.



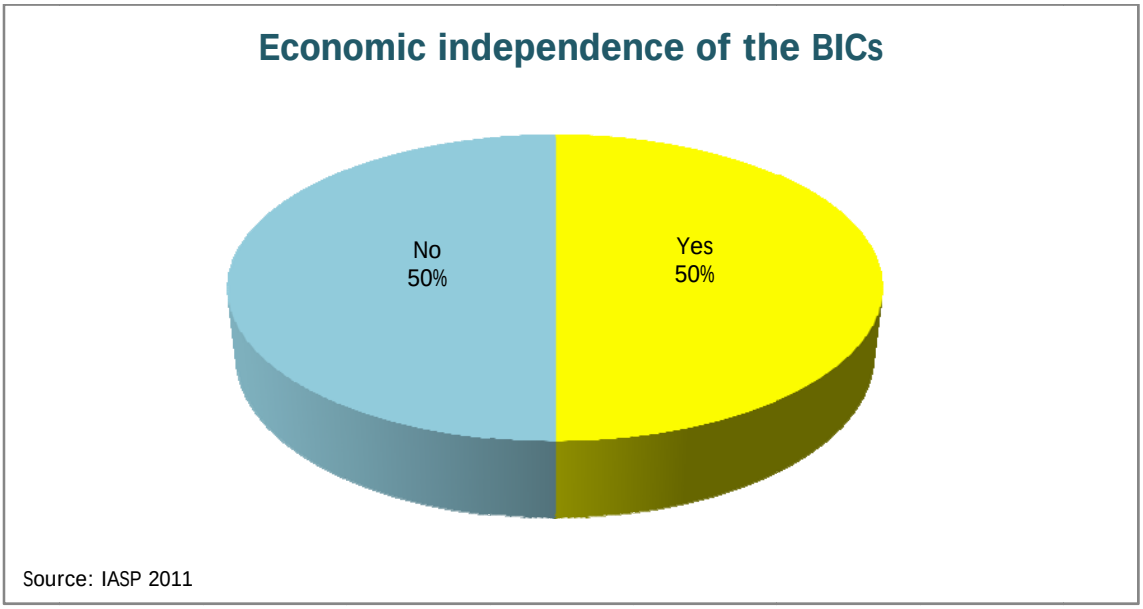
Source: IASP 2011

5.8.4. Economic independence of the BICs

Question asked:

Is your Incubator legally independent economically speaking or does it form part of a larger organisation?

Half of the BICs surveyed are economically independent.



Source: IASP 2011

6. PROMOTING INNOVATION

With the aim to enrich the study, the survey included three open questions in order to allow the organisations to provide some additional information to key topics. This section of the report will present a summary of the answers gathered.

Question asked:

Please describe how your organisation is supporting innovation and promoting the creation of new innovation based-companies in your area. What kinds of projects and guidelines have you been developing?

When asked how the organisations were supporting innovation and promoting the creation of new innovation-based companies in the area, a variety of responses were received. In some cases of STPs it was simply a matter of providing space for the incubation of businesses or ideas, others organise innovation programmes or workshops, whereas some Parks create specific innovation projects focusing on areas such as open innovation or green economic development.

With regards to the incubators, those surveyed responded that the support they provided was in the form of specific support services created especially for this purpose of promoting innovation, or forming networks within specific industries, setting up training and mentorship schemes, and facilitating access to funding.

The other projects surveyed stated that generally raising awareness of innovation and its importance for the economy was key, and that they used workshops and summits to advocate the promotion of innovation and STPs.

Question asked:

We are interested in knowing about the economic system of the area where your project is located. Could you please provide us with some general information about your local economy? (Besides your comments, bibliographical references and links to official

Another point that was asked about was finding out more information about the economic system of the area where these innovation projects were located. There was a wide diversity in the areas where STPs were to be found, ranging from some local economies being the largest in the province to others located in the second poorest province. Agriculture and manufacturing were shown to be key sectors driving the economy although all are looking to expand and work on technology and knowledge based sectors.

This diversity was also reflected with the Incubators and other projects, but not to the same degree. Some are based in highly active economic hubs, with important industrial and administrative roles, whereas others are affected by a still developing economy.

Question asked:

What is the state of public innovation, technology development and company creation policies in your country? What is the government's role with respect to innovation? (Besides your comments, bibliography references and links to official websites would be

The third question that applied to all three groups enquired about the state of public innovation, technology development and company creation policies, as well as the role that the government plays with respect to innovation.

STPs replied that whereas some countries have established national councils or boards for science and technology, other countries are at a very early stage of development in this respect. However, although there has been increasing awareness of the importance of innovation with numerous projects and support for technology innovation and entrepreneurship having been initiated, many STPs would like to see a greater degree of support for the services offered, and more funding would be helpful. There are still many challenges ahead, and many of the legislative issues in

place before starting up a new company make it very difficult for entrepreneurs to get started.

The BICs have found that there is a lot of support from governments in various aspects, via funding and establishing R&D institutions, new projects created (such as finding seed funds for new technologies), developing technology transfer mechanisms, investment in R&D and funding for universities and research councils. However, in some cases it is considered that this support is not quite as effective as it could be.

From the perspective of other innovation projects, it seems that there is some way to go before economy and consequentially government support, is focused on science and technology rather than export and manufacturing. A lack of funding hinders the development of innovation and there is little energy put in to building and creating new innovation environments such as science parks and research centres. This is thought to come from a misunderstanding of the message of innovation and too much focus on the input costs, rather than what can be gained from the innovation outputs.

7. SUMMARY OF THE MAIN FINDINGS

- The industry of Science and Technology Parks and Business Incubators is fairly new in the African continent. This can be seen from the fact that the majority of the organisations surveyed have been created in the last decade.

- The stage of development of the organisations participating in the survey highlights the difference between the Science and Technology Parks and Business Incubators in Africa. Despite the fact that both, as mentioned previously, are relatively new phenomena, a large majority of the BICs are already operational whilst in the case of the STPs surveyed, less than a third can be considered fully operational. Of these, the majority are still under construction or in planning and the construction has not yet started; one could even guess that some of these projects may never go beyond the planning stage. This difference in the evolution and growth curve of both kinds of projects (STPs and BICs) is quite common in many other parts of the world as well.

- With the aim of identifying some of the main engines for development in the continent it is important to know not just the managing organizations of the STPs and BICs, but also the organisations that instigated their creation. As can be seen from the results of the survey, in many cases the 'instigators', the owners, and the managers all belong to the same organisation. The main instigators behind the creation of the STPs are the universities whilst in the case of the BICs it is the government who clearly plays a central role.

  With respect to the implication within the projects, all of the instigating organisations of the STPs remain involved in the project, the majority actively working 'on the front line' on the development while the rest support the project from behind the scenes, letting other organizations take the main management role.

  The case of the BICs is different in the sense that less than half of their instigators are still directly involved in the project, and more than a fifth have already left the project by the time the project is fully developed.

Science and Technology Parks:

- The main objectives of the African STPs surveyed are the creation of new technology-based firms and the economic development of a specific geographic area.

- In Africa, as in the rest of the world, STPs can be catalogued as urban phenomena; the majority of them are located in big cities with more than 1,000,000 inhabitants. The STP premises are extended over a large surface area, although their built area is relatively small. As stated in the report, 40% of the STPs surveyed have a surface area of more than 1,000,000m^2, whereas the Parks with a built area less than 15,000m^2 also represent 40%.

  Within the African STPs' premises, as main elements of the Parks, we find R&D centres, Business Incubators, universities, and other facilities. R&D is a key activity for STPs in Africa if we take into account that 100% of STPs have at least one R&D centre.

- Although the majority of African STPs (60%) can host up to 50 companies in their premises, there is a significant percentage of Parks (33%) with the capacity for up to 500. Currently, the number of resident companies within the STPs surveyed is small (75% of the STPs host less than 20 companies). The ratio between the number of resident companies and the total number of companies that the Park can host provides us with information about the Park occupancy rate, in this case the African STP occupancy rate is low; more than half of the STPs surveyed (62.5%) are using only up to 30% of their total capacity.

  The first obvious conclusion is that African STPs have still a low occupancy rate. But considering the relative youth of the Park movement in the continent it might be more accurate to formulate the conclusion in a different way, namely: African STPs have a large potential for growth in terms of resident companies.

- Attracting foreign companies is an important objective of a significant number of African STPs. In fact, 80% of the surveyed STPs declare that foreign companies are their marketing priority even though half of these Parks acknowledge that focusing on domestic companies is equally important.

- The majority of STPs in Africa (78%) are non-profit institutions owned by public organisations (in 70% of cases). Governments and public administrations are the main agents behind STPs in Africa. Therefore, there are two main entities that participate in the ownership of STPs: government (central and regional) and university.

- All Parks surveyed have a specific governance structure, but a large part of the STPs (57%) have a mixed structure where both shareholders (who have invested capital) and stakeholders (who have not invested capital or do not own any form of equity) are present.

- According to the answers received in 43% of the cases the cost of creating a Park in Africa ranges between US$ 10,000,000 and US$ 30,000,000.

- The economic resources for STPs come mainly from two sources: public grants and services provided (83%). Another important source of income is the rent from buildings which contributes to the institution's income in 67% of STPs.

Business Incubators:

- Like STPs, Business Incubators are urban phenomena located in an urban environment; 46% were found in a large city (with over 1,000,000 inhabitants) and 38% in a medium sized city, (from 500,000 to 1,000,000 inhabitants).

  Regarding their location within the premises of other organisations such as universities or a Science Parks; not many of the Incubators surveyed were found in STPs (only 7%) and universities (20%). However, it is very important to underline that 90% of STPs in Africa have at least one BIC (as is the case for most STPs throughout the world), which means that Parks and Incubators are indeed highly intertwined projects. The conclusion to be drawn is simply that

most African STPs, just like their peers throughout the world, have incubators, but there is also a large number of incubators outside the Parks.

- The BICs in Africa have relatively small infrastructures if we take into account that 36.4% of them host their tenant companies in less than 500m^2, while another 36.4% of BICs affirm that they are built in an area which is between 500m^2 and 2,000m^2.

  Consequently, with the infrastructures offered 66% of BICs can host up to a maximum of 60 companies, and currently 75% of BICs surveyed have up to a maximum of 60 incubatees in their premises.

- Despite the fact that African BICs are relatively small in terms of the number of incubated companies, their occupancy rate is quite high, as shown by the fact that 50% of them are being run at more than 70% of its maximum capacity and another 17% have occupancy rate between 51% and 70% of their capacity.

- BICs that specialise in a technology sector represent 69%. Information and communication technology (ICT), agriculture and agro-processing and chemicals are some of the main sectors in which the African BICs are specialised.

- Like the STPs, the public sector plays an important role as 54% of BICs surveyed have public ownership and 85% of Incubators receive public grants. However, in the case of the BICs it is interesting to point out the significant part that the private sector plays (where 23% of BICs are privately owned).

- The most frequent operational budget for BICs ranges from US$ 500,000 to US$ 1,000,000.

8. SOME PROVISIONAL CONCLUSIONS

The IASP African division intends to organise a regional workshop to analyse the results of this first survey and discuss plans and actions for the future based on its findings.

One of the goals of said workshop will be to elaborate the conclusions that are reasonable to draw from this survey.

In order to facilitate the discussions that will take place at the workshop here are just a few provisional conclusions:

- Africa has clearly decided to join the rest of the world in creating STPs and BICs as tools for regional development within the frame of the global knowledge economy.

- Despite the size and huge diversity that can be found in the continent, in terms of stages of development, cultural, social and historical backgrounds, the STP and BIC movement seem to have sufficient common denominators to enable collaboration and joint actions and programs.

- In fact, the African STP and BIC movement is similar to its peers throughout the world in terms of its main building blocks, objectives and governance/ownership models.

- The STP/BIC movement in Africa would benefit enormously if it were possible to elaborate and coordinate common lobby and advocacy activities throughout the continent, where existing projects, with the support of the international movement (via IASP and similar bodies) would work together in drafting a common message to be "broadcasted" to their respective governments and societies about the role, objectives and importance of Parks and Incubators for cities, regions and countries.

- Raising the management skills of African STPs and BICs managers could be one of the first steps to undertake in order to strengthen our industry in the continent. The organisation of training seminars could be one of the first actions that the IASP African division could carry out. These training courses would benefit from the huge experience accumulated by IASP; the challenge is to be able to adapt all these experiences to the characteristics of the African situations, avoiding a simple mechanical translation of the schemes of other parts of the world to the African Parks and BICs.