



OVERVIEW OF THE PANAMA ASSESSMENT OF GENDER AND STI



*Al servicio
de las personas
y las naciones*

INTRODUCTION

This study is part of the international project “National Assessments on Gender and Science, Technology and Innovation”¹ (STI) which includes a group of studies that measure the participation of women in the knowledge society in different countries of the world. These studies have been carried out following a common methodological framework based on more than forty indicators that measure both the conditions and opportunities available to men and women for participation in the knowledge society (conditions), as well as their relative degrees of participation (results). In addition, the analysis includes public policies, regulations and programs related to equality between men and women, and, in particular, those that impact science, technology and innovation systems (policy environment). This theoretical and methodological approach links environment, conditions and results and allows a deepened understanding, evaluation and measurement of the knowledge society in relation to gender equity and equality.

The National Secretariat of Science, Technology and Innovation (SENACYT) of Panama has joined this important initiative with the aim of generating evidence to support progress in gender equity and equality in the country’s STI system. The main purpose of this study is to make an assessment that details and analyses the situation of women in STI in Panama, measuring and revealing the main gender inequities existing over the period 2006-2018.

The study seeks to answer measure the participation of women in science in relation to men from a quantitative and qualitative approach. In order to measure gender gaps in the main indicators of participation, it seeks not only to know how many and where women are in STI, but also how they are doing, the main barriers they face and how they overcame them in the positions they now occupy. In all of this, we examined the role of national STI policies.

Indicators of participation of women in the knowledge society show the existence of gender gaps in STI. The diagnoses presented shows that women participate less than men in the knowledge society, and are significantly less numerous in certain scientific areas – especially those linked to technology, computing, physics and mathematics – as well as in decision making positions, in scientific leadership positions and as recipients of scientific awards, an assessment that underlines the existence of both horizontal (across scientific areas) and vertical (hierarchical) segregation.

MAIN FINDINGS

POLICY ENVIRONMENT FOR THE INTEGRATION OF WOMEN IN THE STI SYSTEM IN PANAMA

There was no national policy or strategy of women in STI in the equality plans generated by the National Institute for Women (INAMU)

¹ Coordinated by por Women in Global Science and Technology (WISAT), Organization for Women and Science for Developing World (OWSD), Elsevier Foundation and GenderInSite.

until the issuance of the Action Plan for Equal Opportunities for Women, 2016-2019. INAMU's previous plans contemplated the need to promote gender equality in the use of ICTs and to combat the digital divide between men and women but the participation of women in science was not considered. The main STI-promoting institution in the country, SENACYT, did not address the issue until the formulation of the National Science and Technology Plan 2010-2014 (PENCIYT). The Gender Commission of SENACYT, created in 2012, elaborated the gender and STI elements in this plan, making the issue explicit and specific. However, the most recent PENCIYT plan, that of 2015-2019, has abandoned a gender approach, rendering the problem of gender inequality in STI and the actions to be developed for equality between men and women invisible once again.

INDICATORS ON GENDER EQUALITY AND SOCIETY OF KNOWLEDGE

Conditions for the participation of women in the knowledge society

There are gender and ethnic gaps in Panama in women's ability to exercise their basic rights as women, such as the right to sexual and reproductive health, to a life without violence and to political participation.

The indicators analyzed show that although women's basic health indicators are good, the main deficit of women's right to health appears in the area of sexual and reproductive health. The high rates of maternal mortality and early motherhood in Panama place the country in a low position

on the gender equality aspects of the UNDP Human Development Index. The lack of integration of sexual rights and reproductive rights in the fundamental right to health has a major effect on the living conditions of women.

Although Panama ranks relatively high compared to its level of development on global indexes of equality, equity and empowerment, in some areas of social life the differences and inequalities between men and women continue to be very marked. Particularly notable are that women dedicate more than twice as much time as men to unpaid care and domestic work in their own homes and suffer high levels of gender violence, including its most serious manifestation, femicide.

In the economic dimension, we observe that women participate less in productive economic activities and suffer more from unemployment. In addition, they experience a wage gap in relation to men and are more likely than men to work in the informal economy. In terms of access to resources, women have less access to credit and are less likely to own real estate, land or vehicles. In general, however, the gender gaps in the economy have diminished in the last twelve years.

Political participation is one of the most critical indicators. The gender gap is evident in the lack of women in legislative, executive and judicial branches of government, but also in the access of women to leadership positions in the private sector and unions.

Education, the dimension with the most direct relationship to the participation of women in the knowledge society, presents a revealing panorama, with both current challenges and

advances in relation to gender equity and equality. The data collected show that women are more numerous more than men at all levels of education (primary, secondary and tertiary), and have literacy rate close to parity. However, despite the fact that women are in school for more years than men and graduate at a higher rate, they have a high dropout rate for reasons closely related to gender, in particular their lack of good living conditions and of access to sexual and reproductive health. Teenage pregnancies are among the main causes of female dropouts. The absence of a clear public policy is pertinent to these issues.

The gender gap, however, shows different results in indigenous and non-indigenous areas. In indigenous areas, gender gaps are greater in all cases and even more, in some indicators where there is gender parity in non-indigenous areas, critical gaps appear in the indigenous areas. The indicators related to living conditions for women, especially those linked to sexual and reproductive health such as maternal mortality, teenage pregnancies and sexually based violence, prevail at even more serious levels for women in indigenous areas. Gender gaps are generally smaller in urban areas than in rural areas of the country, but higher in all indigenous areas. In many cases, the ethnic gap, measured by calculating the difference in values shown by the indicators for women in indigenous and non-indigenous areas, is even more critical than the gender gap. Women who live in indigenous areas have greater inequalities in relation to other women in non-indigenous areas than in relation to men in indigenous areas. This occurs especially with indicators of illiteracy, educational attainment and dropout rates.

We consider this one of the most revealing findings, not only for the subject we are dealing with, but in general to address the inequalities between different social groups, in particular women. This intersectional view allows a more integral way to observe how other social conditions, in this case ethnic identity and residence in indigenous areas, add to the condition of gender.

At the same time, we see that there has been progress in the recognition of women's rights and in the elaboration of public policies for equality between men and women in line with the international agreements ratified by Panama. It is important to recognize the achievement of the national policy of Equality of Opportunities between Men and Women, as well as the creation of the National Women's Institute (INAMU) itself, as a normative and political framework for public policies on gender and for women in Panama. The difficulties encountered by also those attempting to advance women's rights, particularly with regard to issues such as sexual and reproductive health and parity in politics, show how although the country is in a slow but continuous advance of the recognition of rights and freedoms for women, some issues continue to represent a challenge and meet strong resistance.

In any case, having a normative framework that recognizes the rights of women or public policies aimed at reducing the gender gap and impact on equal opportunities between men and women does not necessarily get reflected in practice. The gender and ethnic gaps still in place show this and suggest another gap, the implementation gap.

Results in terms of participation of women in the knowledge society

Women encounter greater obstacles than men throughout their scientific careers and participate little in decision-making positions in the knowledge society in Panama.

In the knowledge economy dimension we see how women have become the majority (59 percent) of those in professional and technical positions, with a clear increasing tendency over the last twelve years. While they occupy around 40 percent of the positions of upper and middle management, a trend that has been improving over the last decade, important differences remain by area and level. There are more men than women in skilled jobs in the knowledge economy, with men's advantage increasing as the level of employment increases. Women are close to parity at the lower levels, but hold about ten percent fewer jobs at medium and high levels. The numbers of men enrolled in higher education in computer science and those with high-level computer skills are double that of women; in engineering, the numbers of men are more than double those of women. The majority of tenured university professors are men, although there seems to be a trend towards gender parity, particularly in public universities. However, there is a segregation by areas of knowledge, with most of the faculties of engineering, computing or technology being men, with women largely in the social and health sciences.

In some of the scientific fields, especially in physical sciences, mathematics and statistics, as well as computer science, engineering and the fields of industry, production, architecture and construction, the traditional gender division is maintained, with men being the majority of graduates. This is despite the

fact that women comprise 65 percent of those who graduate from university overall.

The majority of researchers in the country are men (more than 60 percent), which also shows a hierarchical trend: there are more men in the position of researcher than in the positions of support staff or staff of scientific and technical services. In the literature on gender and science this uneven trend in the careers of men and women is referred to as the "scissors effect".

A graphic representation in the shape of a scissors of this unequal participation of men and women in science shows how the percentages of men and women reverse their positions as their scientific careers advance.

This effect indicates that women represent the majority of students in higher education, but only about half of researchers, scientists and technologists in the country. With regard to scientific recognition, the percentages decrease, with women making up only one-third of the lead researchers of projects that receive R & D funding or recognition by the National Research System. In addition, only one-fifth of the country's patents include at least one female inventor. At the highest level, in management and decision making in science, women represent only 28 percent of the rectors and do not direct any of the high-level research centers. Equally revealing is the fact that a woman has never headed the National Secretariat of Science, Technology and Innovation (SENACYT).

Indicators of participation of women in the knowledge society show the existence of gender gaps in STI. The assessment shows that women participate less than men in knowledge society, but also that they are significantly less numerous in scientific areas

linked to technology, such as computing, physics and mathematics, as well as in positions of decision making or of high hierarchy and recognition in STI. This shows the existence of horizontal (areas of science) and vertical (position within a given area) segregation.

Officials and managers of the STI system, as well as women scientists, were consulted in the course of this study. Among them we observed marked gender differences in their assessment and analysis of the diagnosis presented. The managers and authorities of science in the country, largely male, see women as participating more and more in all fields of science. They agree that vertical segregation has been reduced in recent years, to such a level that now women are left with only "the last 5 meters" to go. They feel that gender inequality is a problem of the past and that in the natural order of things – without any intervention – it will be overcome. This analysis explains the absence of initiatives aimed at parity or affirmative action for women in the country's scientific and academic institutions.

On their part, women scientists demand actions that correct or combat inequality in the development of their scientific careers. Among the situations that they experience as women scientists and that are not made visible, they point to gender discrimination in the access to positions or scientific recognition due to gender stereotypes; sexist and androcentric organizational cultures in their places of work in scientific and academic institutions; and the lack of actions to reconcile family and work life given that traditional gender roles in society and their homes are still in force. All the women interviewed attested to having had some or all of these experiences, which they have

faced with their own resources in the absence of public STI policies with a gender perspective. Among the conditions that have facilitated their participation in science are having had their own economic resources, belonging to a majority ethnic group, and having a partner who supported their career and embraced responsible parenthood and/or supported and strengthened their personal empowerment. All these conditions express an inequality of opportunities among women scientists themselves and may explain how some women have successful careers in science and others do not. Women scientists affirm that the costs of being or having developed a scientific career is not always visible.

MAIN CONCLUSIONS AND RECOMMENDATIONS

Although education has always appeared as one of the central issues and priority objectives in the struggle for gender equality, the same has not happened within the equality plans and policies developed in Panama in the field of science, technology and innovation. Gender equality has not been a priority issue because the areas where inequality is produced and manifested have remained largely invisible. The invisibility and lack of problematization of gender inequality in STI has conditioned its absence from the public policies developed by institutions responsible for ensuring women's rights and gender equality; in addition, the gender approach is largely absent from the agenda and policies of the institutions that are part of the science and technology system in the country.

Over the last twelve years there has been a reduction in Panama in all the basic social welfare indicators of gender inequality utilized in the study, even in those where the gender gap continues to exist. Some of the gaps are larger than others, but all following a decreasing trend. The exceptions are those that pertain to gender-based violence and sexual and reproductive rights. These that refer particularly to the rights of women to live a life free of violence, decide on matters involving their own bodies and sexuality or participate in the highest spheres of decision-making in all areas of power persist and have even deepened over time. Additionally, they are all also exacerbated by ethnic gaps. These gaps that have not been addressed show inequalities and inequities that condition the equal participation, under

equal conditions, of men and women in the knowledge society.

The indicators of STI collected in the country show multiple challenges and little progress in relation to equity and gender equality, confirming the validity of horizontal and vertical gender segregation. Horizontal segregation keeps women largely out of the STEM disciplines from early ages of their training, maintaining and deepening in their professional and scientific careers. Vertical segregation keeps women scientists out of decision-making positions.

Authorities and managers of the science system in the country, on the one hand, and women scientists, on the other, interpret the current gender diagnosis in STI differently. The scientific authorities feel that much progress has been made in terms of gender equality and see women as poised to start occupying the highest positions in the scientific hierarchy. On their part, women scientists seek not only access to decision-making positions in science, where they are either now not present or are underrepresented but also that their scientific careers can be developed under the same conditions as those of men, without having to face barriers to their professional development by being women.

STI public policies have made very little progress in addressing or reducing these inequities. The few actions developed in this regard by scientific and academic institutions manage to alleviate some of the obstacles encountered by women in their participation in science, but in no way structurally and integrally address the gender causes that explain the inequality between men and women. Among these are especially the persistence of stereotypes and gender roles that place women in a worse condition than

that of men for the development of scientific careers as well as the scarce attention paid to the needs and interests of women in particular to work-life balance -- the reconciliation between professional and family life.

As we point out the perpetuation of gender inequalities in STI, we challenge public policies and scientific institutions to act on them with an equity approach. We recognize that SENACYT, the leading public institution with the mandate to organize and manage STI in Panama, has shown awareness and commitment on this issue as evidenced by sponsoring this study to gather evidence to formulate its policies. In this sense, this study and the prominent national position of SENACYT constitute an opportunity to improve this situation.

We propose two strategic approaches to addressing gender inequality in STI. The first is that we must move from a women-based approach to a gender-based approach. That women participate little, less or marginally in science or that women do not have the same opportunities or have to have an "extra amount" of facilitating conditions to develop a scientific career and occupy decision-making positions in STI are issues of gender relations and perspectives and, therefore, must be addressed from this perspective. So far most of the initiatives developed in relation to this topic have had the focus of "women in science", that is, with a focus on women, without intervention in the systemic, sociocultural or institutional aspects of their lives or careers. The analysis of how many participate, where they participate and how they got there reveals a gender inequality that must be answered with guided initiatives and raised from a gender equity

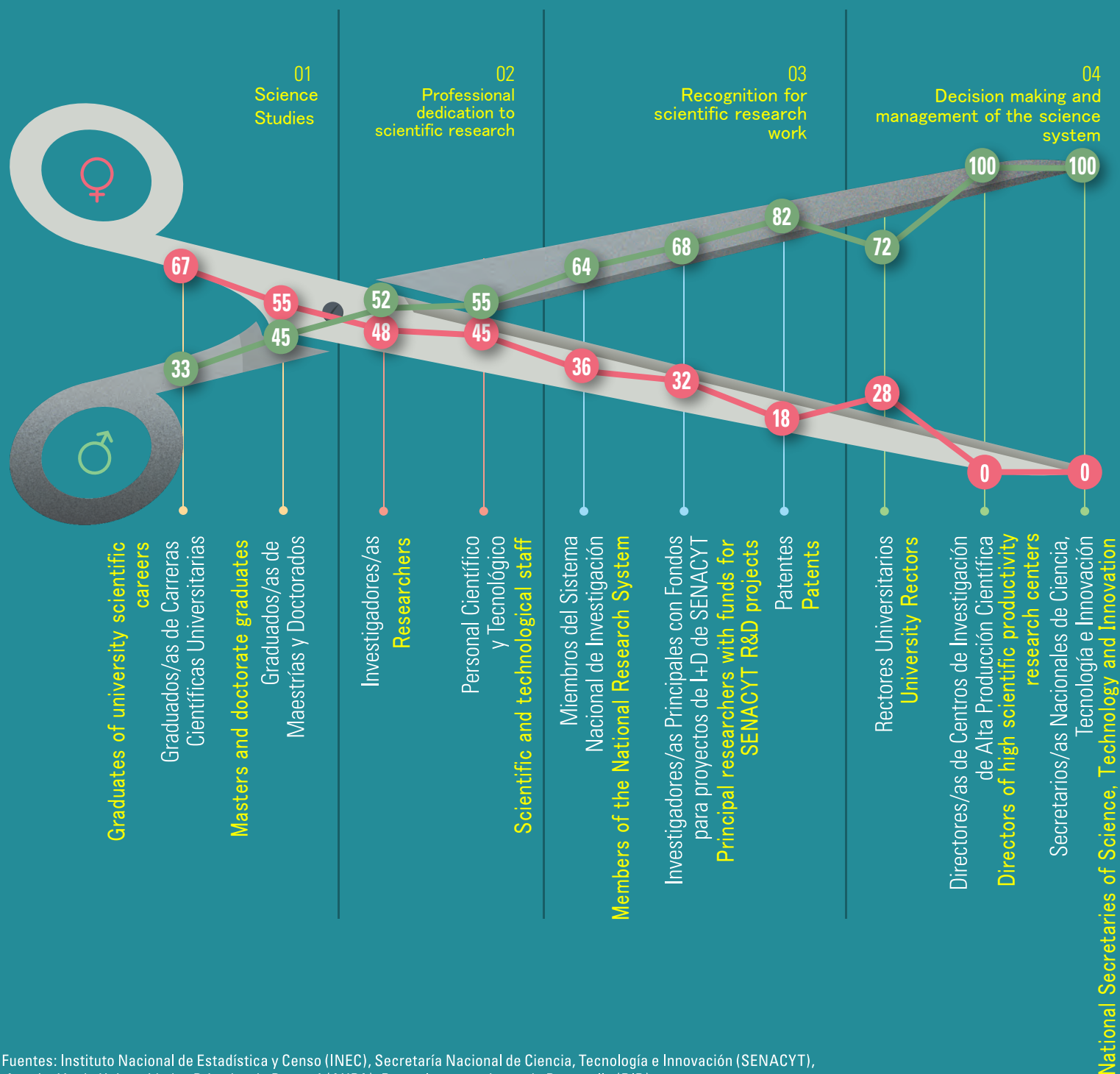
approach. This step will be decisive in making visible results and progress in terms of equality.

The second is that gender is insufficient. The data collected in this diagnosis show that social inequalities in participation in science go beyond gender. The social differences and inequalities in relation to access and participation in science are not only between men and women, explained by gender, but also within a matrix of inequality including ethnic and socio-economic factors.

Expanding the opportunities for participation in the science of all people results in better science. This study challenges those who maintain and reproduce a science system and a gender system based on inequality, including women scientists themselves, so that they become aware and fight for their rights. We hope that the evidence collected in this study serves to reverse the current state of science, technology and innovation in the country from all possible fronts. It is fair and necessary.

DECREASE OF WOMEN THROUGH THE SCIENTIFIC CAREER

PERCENTAGE OF MEN AND WOMEN BY INDICATOR CORRESPONDING
TO THE MOST RECENT YEAR AVAILABLE TO 2018

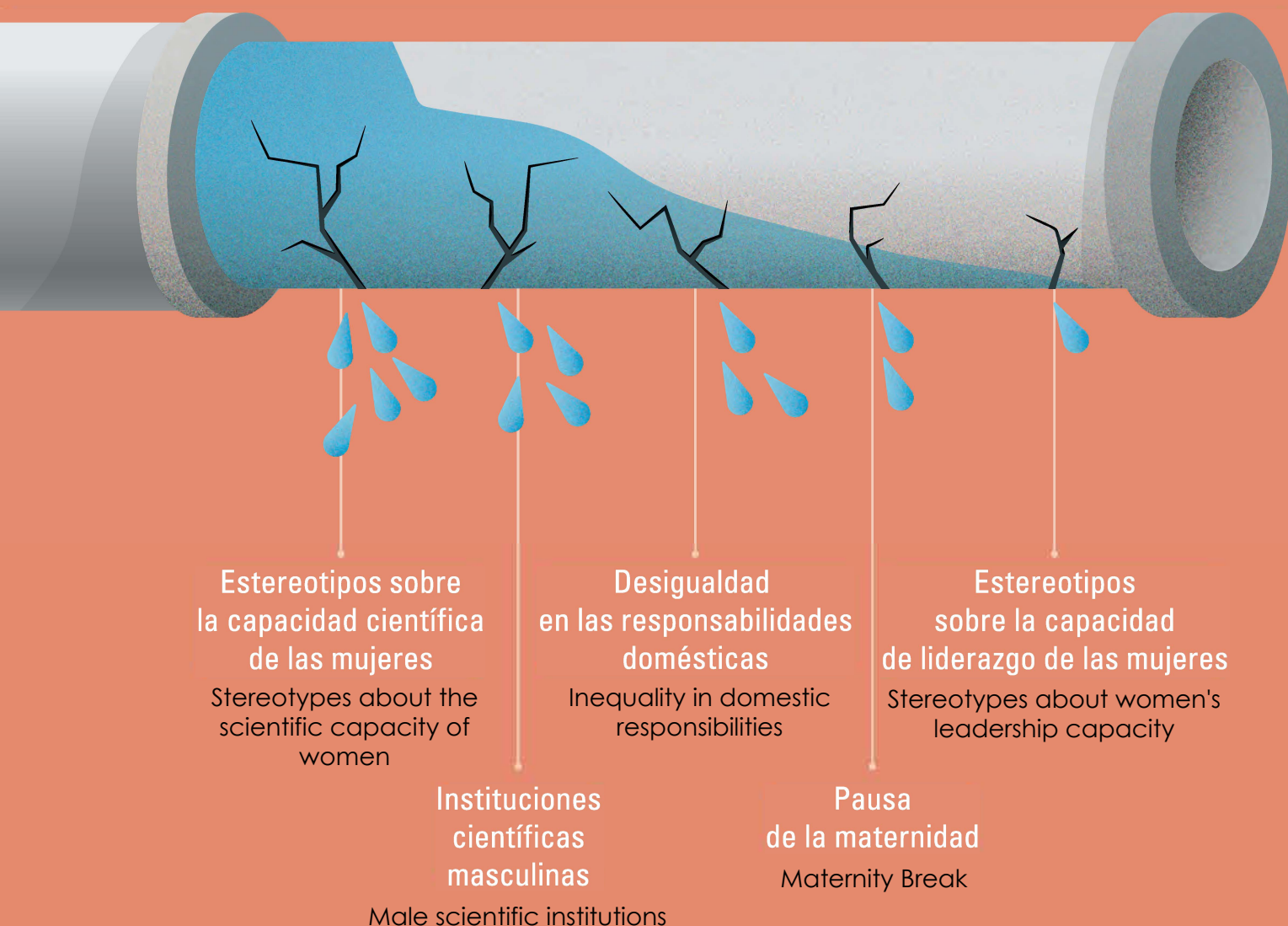


Fuentes: Instituto Nacional de Estadística y Censo (INEC), Secretaría Nacional de Ciencia, Tecnología e Innovación (SENACYT), Asociación de Universidades Privadas de Panamá (AUPA), Banco Interamericano de Desarrollo (BID).

Rodríguez, E.; De León, N.; Marco, Y.; Cámara, S. Diagnóstico de Mujeres y CTI en Panamá. SENACYT, 2018. / Ilustración: Mariel Chong

INEQUIDADES EN LA CARRERA CIENTÍFICA DE LAS MUJERES

INEQUITIES IN THE SCIENTIFIC CAREER OF WOMEN



CONDICIONES FACILITADORAS EN LA CARRERA DE LAS MUJERES CIENTÍFICAS

FACILITATING CONDITIONS IN THE CAREER OF
SCIENTIFIC WOMEN



Domestic and care
support

Maternity postponed or
renounced

Allied husbands and responsible parents

Personal empowerment

Favorable economic conditions

Women referents or mentors

Scientific mothers

DESEQUILIBRIO EN LA PARTICIPACIÓN DE MUJERES POR ÁREA CIENTÍFICA

PORCENTAJE DE MUJERES ENTRE LOS GRADUANDOS DE LICENCIATURAS EN PANAMÁ
EN PROMEDIO DEL 2006 AL 2015

Percentage of women among undergraduate graduates in Panama
on average from 2006 to 2015

