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UNITED NATIONS ECONOMIC COMMISSION FOR AFRICA

STATISTICS DIVISION

THE PARTICIPATION OF WOMEN IN STATISTICAL DEVELOPMENT IN AFRICA

Addis Ababa
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I. INTRODUCTION

Statistics is a body of scientific methods and techniques for quantitatively expressing knowledge and help making decisions. The statistical method is rational and empirical. It represents one of the few genuine approaches for creating, new and proved knowledge. It teaches how to derive general laws from a mass of individual determinations that in themselves are meaningless: the variability of a group of observations for example, is expressed by the value of the standard deviation; a trend such as the increase in yield with increasing amounts of fertilizer is expressed first in the form of a graph and finally in the form of a regression coefficient.

Statistics stems from man's earliest desire to count, to measure, to predict future growth and change. This primary purpose of statistics has not altered in many centuries. However, changes have taken place in the techniques and methods of statistics, so much that statistics stands today not only as a science in its own right, but as an indispensable aid to every other science, and to every field of decision-making. Statistical principles have practical applications in most of the fields and help us to a better understanding, appreciation and control of the phenomena with which we are bound to be in close contact throughout our life.

Africa is an underdeveloped region. We are confronted today with a situation where the economic growth rate, along with agricultural production, is falling from year to year in most countries of the Region, at the same time that population is growing and standards of living are declining. In this picture, some variables, though absolutely crucial, are frequently neglected. These are women and statistics on women.

It is well known that development occurs as a result of the right mix between labour, capital and natural resources. Labour, however, is the most decisive element in development because it is the active factor of production. Both capital and natural resources are passive and require labour to develop and exploit them. Labour or human resources, therefore, are the crucial elements in a development strategy. Africa though underdeveloped, does not lack natural resources. African women constitute the larger portion of the total population. the quality and quantity of this labour force which, according to many studies, remain potential (i.e., not effective) has a significant impact on all areas of development.

In development planning it is rare that one sees any reference to women in the national plan, or any utilisation of statistics for gender anallysis in national statistical reports. Planning for women is hampered bvy the lack of readily available statistics.

The lack of appropriate, timely and reliable data on which to base policy formulation and implementation is a major constraint to any form of development, including the advancement of women. It is likely that women will more zealously and successfully collect data on gender issues, process and disseminate it to the relevant authorities and users.

African countries are at present underdeveloped and poor. It shows in their National Income Statistics, in their lack of transport and communications, in their low labour productivity and in a thousand other ways. But most of all, it shows in their inadequate use of statistical methods. Indeed, statistics is not seen as central to the formulation of plans and strategies, and statistical models from developed countries are being used without any prior reconsideration of gaps or changes in each African country context. For instance, "structural adjustment programmes supported by the World Bank and the IMF have not thus far turned around the economic situation in most African countries, because the model which underlies them is essentially not adapted to the African situation" 1/, which has its proper characteristics. The time has come to utilise in Africa most efficient means than ever to move steadily and firmly in the direction of progress and development. But this will only happen through the systematic use by men and women of soundly conceived statistical methods and techniques of collecting, storing, disseminating, estimating, forecasting, analysing and interpreting facts about relevant phenomena. This step is a prerequisite for the formulation and implementation of policies or strategies that will lead to better life for to-morrow in this region of the world. Obviously, the most significant and efficient source of reinforcement can only come through the increase of women participation to statistical development which is presently very low. The proportion of female students at the middle and higher education level is very small in statistics and related fields, and the proportion of female workers in these fields is even lower and is almost null at responsibility posts.

The elimination of discrimination based on sex and the promotion of African women into full participation in development constitutes one of the ECA main concern. This concern is within the framework of the three themes of the United Nations Decade for Women approved by the United Nations General Assembly to remain valid until the year 2000. These three themes are:

The promotion of equality between women and men, the participation of women in development and the role of women in the strengthening of peace.

1/ Africa Recovery News FEATURES, July 1989.

We all know it is the women in Africa who hold almost all the information in almost every field, and thus are the source of most statistical data. For instance, in all fields of agriculture in Africa, 70-90 per cent of workers are women, and since men usually do nothing in the house apart from paying the bills, women are the best purveyors of reliable information on domestic consumption and expenditure, family care, child development etc. However, women are often neglected when the techniques of processing this information are being propagated or taught to laymen.

Among the indicators of women's effective participation in the statistical development process is education and training in statistics and related fields, and the role that women with qualification in these fields play in the society. The main objective of the paper is to establish the situation of women in statistics and related fields. In this attempt, statistical data showing the involvement of women in statistical-based training programmes is presented. Information and data on women in satistical-based professions is also presented. Issues on the particiaption of women in statistical development are discussed. Finally, some strategies for improving and increasing women's participation to statistical development in Africa are proposed.

II. ANALYSIS OF THE SITUATION OF WOMEN IN STATISTICAL BASED PROGRAMMES AND PROFESSIONS

In reply to ECA/STAT questionnaire regarding statistical data on women enrolment in the statistical training programmes at the secondary and university, and statistical data on women in statistical based professions, only few countries could provide data. Statistical based professions, apart from statisticians, include economists, demographers and specialists in the processing of socio-economic data.

The proportion of women in many countries in Africa who have studied statistical and related subjects to any appreciable level is insignificant and so is the proportion of women in these professions. Most researches undertaken in Africa have already established the low representation of women in science-and-technology-based training programmes as well as professions and the reasons as mentioned in a report from ECA/ATRCW include inadequate infrastructure and facilities; inadequate or lack of institutional support; traditional attitudes towards science-and-techynology-based subjects. These reasons also justify to a great extent the low participation of women to statistical development. However, a study done in Data Highlight No.10 shows well that preference also plays a big role in this matter. Women have a marked preference for certain fields when compared to men; these fields include social sciences and medical sciences, but exclude statistics.

The data shown in the tables below come from data collected through the ECA/STAT questionnaire on women participation to statistical development, some case studies and the directory of African statisticians.

A. FEMALE ENROLMENT IN STATISTICAL-BASED PROGRAMMES

Table 1: Distribution of students graduating with a bachelor degree in statistics, or as ITS in some selected African countries

COUNTRY	1980	1982	1984	1986	1988	1990
BOTSWANA						
Males	6	8	14	12	9	11
Females	4	10	10	6	3	10
COTE D'IVOIRE						
Males	3	17	22	13	17	19
Females	0	0	0	0	1	1
GHANA						
Males	11	23	13	32	26	34
Females	5	7	2	7	5	6
RWANDA						
Males	23	16	22	29	28	22
Females	0	0	0	1	0	1

Source: University of Botswana, ENSEA, University of Ghana, IAMSEA.

Table 2: Distribution of students graduating with a Diploma, or as "adjoint technique" in some selected countries

COUNTRY	1980	1982	1984	1986	1988	1990
BOTSWANA						
Males	3	4	3	6	7	6
Females	1	2	3	3	5	0
COTE D'IVOIRE						
Males	16	9	12	16	6	18
Females	0	1	0	2	1	3
RWANDA						
Males	-	-	-	24	13	16
Females	-	-	-	0	0	5
TANZANIA						
Males	-	-	-	10	5	2
Females	-	-	-	2	2	2

Source: University of Botswana, ENSEA, IAMSEA, EASTC.

Tables 1 and 2 show that, except for Botswana, females graduating in statistics are very few compared to males.

Table 3: Female proportion in economics (Percentage)

COUNTRY	B.A., B.Sc.	
	1985	1990
BOTSWANA	30.00	20.8
ZAIRE	69.6	63.2

Source: University of Botswana and Zaire University

Table 4: Female proportion in demography in Ghana, (Percentage)

DEGREE	1979	1981	1983	1985
M.A. & M.Phil.	33.3	0	50.0	66.7
Graduate Diploma	15.8	24.0	19.0	9.5

Source: RIPS

Unlike in tables 1 and 2, women proportion in economics and demography is quite significant in Botswana, Zaire and Ghana. In Zaire in particular, there are more females in economics than males and in Ghana, for the years 1979, 1983 and 1985, the parity is closed to be achieved in demography.

B. COMPARISON BETWEEN THE ENROLMENT OF WOMEN AND THAT OF MEN IN DIFFERENT FIELDS OF STUDY

Although there is equality in terms of accessibility of students to subjects in the curriculum in most school educational system, some subjects reverse to being sex-stereotyped.

The data in tables 5 and 6 on the next page, compare male and female students in their fields of study in the third level of education.

Table 5: Distribution of male and female students by field of study in Africa (Percentage), 1982

FIELD OF STUDY	MALE	FEMALE
Education	10	15
Social Sciences	52	56
Medical Sciences	9	12
Natural Sciences	21	11
Agriculture	7	6
Others	1	0

Source: Based on United Nations Educational, Scientific and Cultural Organization (UNESCO), Female Participation in Higher Education: Enrolment Trends, 1975-1982.

* Note: Numbers have been rounded.

Table 5 clearly shows the preference of women for the fields of teaching, social sciences and medical sciences when these preferences are compared with those of men. It also shows that most women prefer these subjects to statistics (included herein "Others"), natural sciences and agriculture. Such preferences do not necessarily mean that women dominate these fields numerically: this depend also on the enrolment ratios which, as seen in Data Highlights No.8, are usually much lower for women, which points out the need to promote women education.

Table 6: Percentage of women in each field of study in Africa, 1982

FIELD OF STUDY	PERCENTAGE
Education	39
Social Sciences	32
Medical Sciences	36
Natural Sciences	19
Agriculture	25
Others	4

Source: See Table 5

* Note: Numbers have been rounded.

Since statistics is clearly included in "Others", table 6 shows that this subject is very rarely prefered by women. It also shows that the low proportion of women in statistics and related fields is due, to a certain extent, to women preference for other fields. Therefore, there is a tremendous need to promote awareness of statistics and related subjects (mathematics, computer science), and to promote an awareness of the applications of the skills in these subjects in various occupations.

C. THE PARTICIPATION OF WOMEN IN STATISTICAL BASED PROFESSIONS

Table 7: Occupational composition of the labour force in statistical based professions, Cote d'Ivoire 1985, and Republic of Botswana, 1989-1990

COTE D'IVOIRE	1985 M	1985 F
Professional	105	6
Middle level	54	4
Clerical	44	4
TOTAL.....	203	14

REPUBLIC OF BOTSWANA	1989 M	1989 F	1990 M	1990 F
Professional	14	14	16	16
Middle level	9	4	9	6
Clerical	61	59	57	50
TOTAL.....	84	77	82	72

Source: Cote d'Ivoire and Republic of Botswana
------ National Statistical Offices.

The results in Table 7 shows that in Cote d'Ivoire, the proportion of women in statistical based professions is very low and inversely proportional to the occupational level. The case of Botswana, in the same table, demonstrates well that this result cannot be generalized to all countries in Africa. Indeed, it looks like in Botswana, parity has been achieved on is closed to being achieved for both sex at all occupational level.

DISTRIBUTION BY SEX OF PROFESSIONAL STATISTICIANS WORKING IN AFRICA, 1988 AND 1990

	1988				1990			
	TOTAL	MALES	FEMALES	FEMALES PROPORTION %	TOTAL	MALES	FEMALES	FEMALES PROPORTIO %
NORTH AFRICA.------	176	158	18	10.2	185	167	18	9.7
Algeria.....		6	0			8	0	
Egypt.....		13	5			14	5	
Morocco.....		109	13			116	13	
Socialist People's Libyan Arab Jamah.		-	-					
Sudan.....		10	0					
Tunisia.....		20	0					
WEST AFRICA---------	422	385	37	8.8	469	430	39	8.3
Benin		29	1			28	1	
Cape Verde.....		3				3	0	
Gambia.....		2				8	2	
Ghana.....		51				53	7	
Guinea.....		28				29	8	
Guinea Bissau.....								
Ivory Coast.....		50	5			47	4	
Liberia.....		7	0			7	0	
Mali.....		15	0			36	4	
Mauritania.....		5	0			5	0	
Niger.....		7	0			6	0	
Nigeria.....		91	8			90	8	
Senegal.....		52	3			57	3	
Sierra Leone.....		12	3			11	3	
Togo.....		6	0			7	1	
Burkina Faso.....		27	0			43	0	
CENTRAL AFRICA-------	183	179	4	2.2	198	195	3	1.5
Burundi.....		5	0			15	0	
Cameroon Un.Rep.of.		26	1			22	1	
Central Afr.Rep....		13	0			12	0	
Chad		8	0			15	0	
Congo.....		29	2			36	2	
Equatorial Guinea..		3	0			3	0	
Gabon.....		9	0			3	0	
Rwanda.....		58	1			64	0	
Sao Tome & Principe		1	0			1	0	
Zaire.....		27	0			21	0	

	1988				1990			
	TOTAL	MALES	FEMALES	FEMALES PROPORTION %	TOTAL	MALES	FEMALES	FEMALES PROPORTI %
EAST AFRICA AND INDIAN OCEAN ISLAND COUNTRIES	293	266	27	9.2	343	312	31	9.0
Comoros.....		2	0			6	0	
Djibouti.....		7	1			5	0	
Ethiopia.....		97	10			118	12	
Kenya.....		38	3			39	3	
Madagascar.....		25	1			25	1	
Mauritius.....		26	4			26	4	
Seychelles.....		8	0			8	0	
Somalia.....		-	-			-	-	
Tanzania,UN Rep.of		36	6			46	8	
Uganda.....		27	2			39	3	
SOUTHERN AFRICA ------	247	198	49	19.8	247	198	49	19.8
Angola.....								
Botswana.....		29	11			27	11	
Lesotho.....		12	5			13	5	
Malawi.....		27	2			29	2	
Mozambique.....		-	-			-	-	
Namibia		-	-			-	-	
Swaziland.....		18	11			22	12	
Zambia.....		32	4			37	4	
Zimbabwe.....		80	16			70	15	

ECA maintains a computerized file of African statisticians from which the Directory of African Statisticians is prepared every two years. For the preparation of the 1988 and 1990 issues, forms were circulated to all statistical offices, universities and all relevant institutions. Since 1986, only professionals who returned their forms are included in the database. Thus, the list of professional statisticians working in the African region, provided by the directory, may not be exhaustive. For instance, although there are hundreds of professional statisticians in Algeria, including females, the 1990 issue of the directory indicates a total of eight, all males. No response was received from the Libyan Arab Jamahiriya since 1986.

It would seem that in the African region, men and women are very reluctant to release information even for development purposes. Everything possible must be done to sensitize people about the necessity to provide useful information. The lack of appropriate data on which to base planning and projects is a major constraint to progress. Improved databases on economic and demographic phenomena, for example, is a prerequisite for estimating, understanding and dealing with the health and economic problems confronting everyone in the region. The Directory of African Statisticians is produced within the framework of technical co-operation among developing countries and therefore aims at promoting the use of expertise and skills available in one African country for solving developmental problems in another.

Table 9: Proportion by sub-region of female professional statisticians working in Africa, 1988 and 1990

REGION	PROPORTION (Per cent)	
	1988	1990
North Africa	10.2	9.7
West Africa	8.8	8.3
Central Africa	2.2	1.5
Indian Ocean Island Countries & East Africa	9.2	9.0
Southern Africa	19.8	19.8
TOTAL.....	10.2	9.7

Source: UNECA/STAT, Directory of African Statisticians.

The striking information contained in this table is that the share of female labour force at the professional level in statistical based professions is very low and is getting even lower, although the total number of males as well as females statisticians is growing.

According to the same source, at UNECA, the proportion of female professional statisticians working in Africa rose from 2.8% in 1988 to 14.2% in 1990. Here, the sharp increase is due to the adoption in 1986 of the new United Nations policy of achieving the target of 30 per cent total professionals in the UN system as women by the end of 1990; there is even a draft resolution for attaining 35% by 1995.

It is interesting to notice that at the professional level, the share of female labour force in statistical development varies very much from one sub-region to another. In Southern Africa, it

reaches 20% whereas in Central Africa, it is only 1.5%. Indeed, in seven countries out of 10 in Central Africa, the proportion of female is null in 1988 and 1990, while in Botswana and Swaziland respectively, it is 27.5% and 37.9% in 1988; 28.9% and 35.3% in 1990. In the fifty-one UNECA member States, the women share, both in 1988 and 1990 was null in 17 countries (see Table 8).

It is hard to tell which factors govern the participation, or non-participation of women in statistical development at the professional level. However, it is very likely that the female lower registration for mathematics give them an early disadvantage with respect to the poursuit of statistics and statistical-based careers (ref. ECA/ATRCW/3.1(i)(b)/90).

It would seem that with more education, and the lack of awareness of statistical-based professions, women are chosen rather other scientific and technical professions more often than statistics.

It would also seem that the struggle for human right in the Southern African region, which has become a way of life in South Africa, has benefited to the countries in that region and could justify the relatively high participation of women in statistical development in many countries of the region.

Table 10: Composition of staff with qualifications in statistics on decision-making posts in Cote d'Ivoire, 1985

MAJOR FIELD OF STUDY	TITLE	MALE	FEMALE
Statistics	Minister	1	0
	Director	8	1
	Deputy Director	18	2
	Chief of Unit	35	1
	Research Worker	137	6
Demography	Minister	-	-
	Director	1	-
	Deputy Director	2	-
	Chief of Unit	1	-
	Research Worker	12	1
TOTAL		215	11

Source: Cote d'Ivoire National Statistical Office.

Table 11: Composition of staff on management posts in statistical based professions, Ghana, 1975-1990

MAJOR FIELD OF STUDY		1975 M	1975 F	1980 M	1980 F	1985 M	1985 F	1990 M	1990 F
Statistics	Minister								
	Director								
	Deputy Director								
	Chief of Unit								
	Research Worker					1	0	1	0
Demography	Minister	1	0	1	0	1	0	1	0
	Director								
	Deputy Director								
	Chief of Unit	3	0	3	0	3	0	3	0
	research Worker								
Data Processing	Minister								
	Director								
	Deputy Director								
	Chief of Unit			1	0	1	0	1	0
	Research Worker								

Source: RIPS.

The data in Table 10 indicates that only 5% of decision-makers prepared for a statistical based profession in Cote d'Ivoire are women.

Table 11 shows that staff on management posts at the Regional Institute for Population Studies in Ghana is all males.

Table 12 indicates that there is no female among decision-makers in Zaire, with qualifications in statistics and related fields.

Two directors of national statistical offices only, out of the fifty-one in the UNECA member States, are female.

IV. TOWARD A GREATER PARTICIPATION OF WOMEN

The experience of the last decade demonstrates convincingly that in order to improve the development process in the African region, much must be done in statistics. One cannot hope to carry out successfully the task before us in this domain without women making their half of the contribution. However, statistical development with women as full partners, in Africa, involves such things as:

1. More formal education and training for women.

2. Encouraging, girls to study mathematics and statistics and promoting an awareness of the applications of statistics in development and of statistical skills in various occupations.

3. Making use of the media to enhance attitudinal changes needed to integrate women in the statistical development process.

4. Creating child care facilities and setting up structures for increasing children's security outside the home.

5. Revising some laws.

6. Social, cultural and ideological changes.

7. Making family planning services available and affordable to women.

Without any formal education or training, a woman participation to statistical development is very limited. Indeed, she can only play a role of purveyor of information. Although this is a major contribution to statistics in the African context where women are the only ones capable of providing the data needed in some key surveys and censuses, namely in all fields of agriculture,in domestic consumption and expenditure, on fertility,family care and child development, it does not involve much participation since in average, per year, it takes less than one per cent of her time. However, women, even illiterate, can acquire, if given the opportunity, some statistical skills which may for example, make more productive a small-scale business or industry. As they are more educated in the subject, they can be able to make more advanced and involved contribution to statistical development, which is probably what is needed to fill the actual gaps that the region has in statistics and which is hampering its economic recovery.

To improve women participation to statistical development, it is crucial to encourage girls to study mathematics and statistics and to promote an awareness of the applications of statistical skills. High priority should be given to the education of female on the subject. This can be achieved by setting good quota for women (girls) in training institutions. Model training institutions in home economics, for female at secondary levels exist in many countries in Africa. Such model schools for statistical training and related fields, at both secondary and post secondary levels might usher in greater participation of women and girls in statistical development. also, these subjects could be introduced with a high coefficient into programmes in every already pre-existing female training institution.

International organizations and donor agencies should offer financial support or fellowships for training outstanding female students in mathematics and economics in advanced statistics and computer science. Special funds should also be made available to train women in statistical-based professions, in the use of computers and statistical packages as well as other new office technologies.

As pointed out earlier, education is not the only barrier to women participation in statistical development in Africa. Social values, attitudes and practices in African societies are not often conducive to any advancement for women and have persistently prevented them from participating efficiently to activities outside the home. For example, bearing children is not often seen as a social responsibility, but as woman responsibility from which even her dignity depends. We now discuss some critical issues of social transformation that would improve this situation.

The change of men's attitude is absolutely needed to alleviate women's household drudgery so that they can use enough of their time for acquiring statistical skills and exercise these skills outside the home. This approach of course, raises the issues of promoting male responsibility for home and child care, and in turn, of changing the way young boys and girls are socialised and educated. Would the man accept to share the household tasks? In the African context, it may take time.

In fact, the gender organization of the society has strongly affected women and inhibited their creating capabilities. There is a need of a deep social change, notably the change in mentality, to create an enabiling environment so that women can unforld their potentialities without having the feeling that they are transgressing social taboos. But, women misery is not only due to the division of labour: numerous other social biases preventing women from blossoming intellectually and participate as full partners in the development process were also created by men, have been erected into laws, and can only changed by them.

One of the most terrible bias affecting women is the rule of inheritance. When she gets old, the most hard-working woman of most African regions very rarely has any property of her own. The house and other durable goods which have been accumulated by their joint enterprise, belongs by custom and usually by law, to the husband alone. If the couple divorce the woman has nothing. When the husband dies, his male relatives claim everything. This lack of property rights has enormous consequences: women are regarded as inferior to men and hence, not of equal social worth. They have very great difficulties in getting a loan from the bank, and the survival of many old women, widows and single mothers as well as their children's, depend on the charity of generous people.

Although legislation in itself cannot change attitudes, it represents an important step towards the achievements of real equality for women, by providing a legal basis for a change in behaviour. Repeal of laws which discriminate against women and enactement of appropriate laws will make effective strategies for removing bias against women in the social, economic and political spheres, and restoring women dignity and self-confidence. These measures, combined with the sensitization of all agencies and institutions to women's needs and to the promotion of women's participation in development, will ensure equal employment opportunities, and therefore, greater women participation to statistical development.

Last but not the least, measures should be taken to protect the health of the mother and child, giving the high maternal mortality rate and the repeated unplanned pregnancies that women in the African region experience. There is a need to teach both men and women about the use of reproductive technologies, and to make them easily available and affordable. Fertility awareness programmes should be created to educate people in that respect; this would give women, in particular, greater control over their bodies, and will bring a larger number of female to higher education and advanced training. Most schools in most countries of the African region dismiss pregnant students. It is difficult for a woman consistently pregnant and with many very young children to participate to the development process, and studies show that with improved medical care, it is unlikely that a country where women are very prolific become prosperous.

V. CONCLUSION

The foregoing survey reveals that there is a relatively low participation of women in statistical development in Africa. Barriers and factors which led to this situation have been identified and discussed. the major ones include: a socio-cultural society organization non conducive to women intellectual blossoming, biased laws against women, lack of supportive services for female workers and students who have young children.

At the level of education, there is need to encourage more girls to study mathematics and to promote an awareness of the applications of statistics in every field of the development process, and to emphasis the use of statistical skills in various occupations. High priority should be given to the admission of girls in statistics and related subjects classes.

To increase the number and improve the role of women in statistical-based professions, socio-cultural and legislation changes are necessary and it is important to sensitize all agencies and institutions to the promotion of women's participation in statistical development.

At the social level, there is need to provide supportive services such as child care centres and family planning to female, to facilitate their involvement in statistical training or employment. Data are to be collected on women and gender issues to be taken into account in national and regional strategies.

Because of the limited scope of the subject, we did not discuss the importance of women in statistical development which, in the African context, assume a particular value. So, we did not insist upon the crucial role that women play in key fields of socio-economic statistics such as agriculture, domestic consumption and expenditure, fertility, family health care, food production, processing and marketing, where, because of the division of labour, they are the only source of reliable data and, the best interpreters of the results obtained. A complete investigation on "Women and statistical development in Africa", would require such things as the distributiobn of the population of all countries by sex, major subject in formal education, profession, and age. Nevertheless, we know that women are very fewer than men in the stone-yard of the statistical development. Half of the adult population of Africa is composed of women. If Africa is to reach its development goals, women must have the chance to make their half of the contribution. the quality of their lives will shape our common future.

I V. CONCLUSION

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