DOCUMENT RESUME

ED 430 267 EA 029 676

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TITLE Educational Progress Indicator (E.P.I.): Synthetic Indicator for Monitoring Education. Contribution to Education for All.
INSTITUTION United Nations Educational, Scientific, and Cultural Organization, Dakar (Senegal). Regional Office for Education in Africa.
PUB DATE 1998-00-00
NOTE 47p.
PUB TYPE Reports - Evaluative (142)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Achievement; *Comparative Analysis; Educational Quality; Elementary Secondary Education; Foreign Countries; *Instructional Effectiveness; Research Tools; *School Effectiveness

ABSTRACT

This publication complements the "Education for All" program and is intended to provide a comprehensive and operational indicator for monitoring education. As a synthetic tool, the Educational Progress Indicator (EPI) facilitates the analytical assessment and projection work of educational planners, managers, actors, and policymakers. The EPI combines three basic indicators: (1) the net enrollment ratio; (2) the functional literacy rate; and (3) the higher education attendance ratio, which is equivalent to the number of students per 100,000 inhabitants. The average of the levels of satisfaction of the three indicators provides the average aggregate level of satisfaction with regard to the EPI. Recently available data show that countries can be classified into three major groups: countries with EPIs lower than 60 percent, mainly African countries; those with EPIs between 60 percent and 75 percent, most Asian, South American, and Central American countries; and those with EPIs between 75 percent and 90 percent, which includes the most efficient industrialized countries. This booklet outlines the need for synthesis in educational indicators and describes how the EPI was constructed. It explains the special features and uses of EPI, such as the comparability between countries in spite of differences in systems, and details the applications of EPI and the state of education of women and girls. (RJM)

EDUCATIONAL PROGRESS INDICATOR

- E.P.I. -

Synthetic Indicator for Monitoring Education

Contribution to Education for all

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Published by the UNESCO Regional Office in Dakar (BREDA)
12, Avenue Léopold Sédar Senghor. B.P. 3311, Dakar, SENEGAL

Foreword

This publication is a contribution to Education for All which has won worlwide consensus since 1990. It is aimed particularly at filling a void symbolized by the inexistence of a comprehensive and operational indicator for monitoring education.

Certainly, there are numerous partial indicators linked to educational sub-systems or some specific aspects. However, there is an increasing need to have a synthetic indicator that takes account of the fundamental aspects of educational progress in a country, a region and at the international level.

Furthermore, the need for comparability is growing with the on-going globalization process together with its counterpart regional and zonal integration. The need is all the more urgent as there is already a comprehensive indicator designed to cover the major aspects of human development. Therefore, the educational system reflecting a greater homogeneity than the socio-economic macro-system, it is quite understandable that an appropriate indicator be assigned to it.

The advent of such an indicator makes it possible to take a fresh look at the trend of education throughout the world, and the progress made as regards the education of women and girls. The issue of gender tackled at various levels, requires undoubtedly, a comprehensive approach, a tool for evaluating overall performances.

The Educational Progress Indicator thus meets a need for innovation in terms of evaluation instruments. Hence, it comes as a supplement to the existing indicators.

I wish to thank all those who, over the last ten years, have participated actively in designing and improving the instruments of socio-economic analysis and evaluation.

To all of them, I am especially indebted.

The author

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I – Introduction

Throughout the 20 th century and the preceeding centuries, the world has lived without a general indicator that makes it possible to monitor educational progress and facilitate international comparisons at a global level. As we approach the third millenium, the question arises as to whether it is appropriate to operate without a tool for synthesis.

Doubtless, the design of a comprehensive evaluation instrument has become an incontrovertible issue.

To proposed Educational Progress Indicator (EPI), provides an answer to this historical question ; for, at a time that the systemic approach and global perspective are getting increasingly asserted, the educational system should not be behindhand.

To meet the challenge, it is necessary to define the fundamental aspects of education progress from which some basic indicators will be selected.

These aspects reflect the crucial data relating the educational situation.

What method of aggregation or combination should be chosen in line with the objective of evaluating educational progress ?

Since the idea is to evaluate distances bearing in mind some standards, how can these standards be defined ? It was through the consideration of these various questions that the educational progress indicator was designed as the resultant of the combination of three basic indicators namely :

- The net enrolment ratio, reflecting the proportion of pupils enrolled in the primary cycle and being part of the official reference age-group (generally 6 to 11 years) in relation to the total population of the reference age-group (enrolled or not).

- The functional literacy rate representing the proportion of the functionally literate population aged 15 years and over, in relation to the total population aged 15 years and over.

- The higher education attendance ratio which is equivalent to the number of students per 100,000 inhabitants.

For each indicator, a level of satisfaction is calculated from the relative distance with respect to a minimum standard and considering a maximum one.

Hence, it is the average of the levels of satisfaction of the three indicators which provides the average aggregate level of satisfaction with regard to the Educational Progress Indicator.

The calculation undertaken for the selection of countries by regional groups or development level on the basis of recently available data, shows that countries can be classified into three major groups : countries whose EPI is lower than 60% : these are mainly African countries ; those whose EPI lies between 60% and 75% : most Asian, South American and Central American countries come under this group ; and finally the countries whose EPI varies between 75% and 90%, which are the most efficient industrialized countries. None of these countries exceeds at present the 90% threshold. Canada tops the list followed by Australia, United States, New Zealand and Finland.

In the African group, Mauritius tops the list followed by Swaziland, Tunisia, Botswana and Algeria. An examination of the EPI at the global level shows that during the last four decades, the EPI remained virtually below 50% Moreover, from decade to decade, the rate of educational progress slowed down. Thus from a variation of 6.8 points between 1960 and 1970, the progression registered was only 5.4 points in 1990 as compared with 1980. The effects of the economic crisis are not foreign to such a decline.

However, with regard to the EPI relating to the female population, there was a slight progression in 1980/1990 as compared with 1970/1980.

But nevertheless, the female EPI was below 47% in 1990.

Concerning all developing countries, the average EPI level and the female specific EPI are greater than the corresponding levels of Africa. Therefore, it is obvious that for Africa, education should take absolute priority.

The different trends observed reflect the results of the educational, socio-economic and cultural policies implemented. Finally, it will be noted that at the current rate of increase of EPI worldwide, a period of at least 7 decades would be required to achieve a 100% EPI, if the socio-economic and cultural conditions do not deteriorate.

What then would happen if the 100% level is attained ? A new historical choice of relevant indicators will be envisaged. Among such indicators, the rate of functional literacy in computer techniques and new communication technologies, the percentage of successfull secondary school leavers and the number of students per 100,000 inhabitants, together with a new historical objective to be attained, could be experimented as basic indicators to be considered in the calculation of a renovated EPI.

But at present, the aim is especially to take account of the current educational realities experienced by the majority of countries.

II – The present situation

The establishment of the information system for development planning and management is a priority task in most States.

This information base is especially necessary since, for over a quarter of a century , the world economy, particularly the economy of developing countries, has been striving to get out of the crisis and have a new lease of life.

To the requirements of national planning can be added the need for monitoring and evaluation in the development agencies providing technical and financial support.

Measuring the impact of activities and initiatives, evaluating the scope of political, economic, social and cultural measures are all key aspects in the search for efficiency and effectiveness. To this end, the debate on growth and development has triggered an extensive search for socio-economic indicators including growth and social indicators.

The famous per capita GNP was not enough to reflect the level of development. The need to undertake a selection of indicators for the purpose of development management has led to the formulation of numerous proposals for indicators deemed the most adequate. In education in particular, the indicators relating to each sub-system of the educational system as well as agregate indicators and particularly cost indicators, have engaged the attention of development planners, managers and actors.

In this investigation dynamics, the problems of definition are certainly of great importance.[1]

At the end of the 80s, the crisis which had become acute for some countries, particularly those under adjusment, triggered a trend that encouraged the mastery and control of human resources and sustainable development indicators. The idea was to define some new strategies that would make it possible to make significant progress with regard to analytical and evaluation instruments in the 90's (Miles, 89).[2]

Human resources development was at the very centre of sustainable development concerns. Hence, for the design of new indicators, such an orientation is worth taking into account.

The year 1990 was a turning point with the advent of the concept of human development and the formulation of a synthetic indicator for the entire national socio-economic system, namely the Human Development Index (HDI)[3]

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1 Social indicators : Problems of definition, UNESCO-P ARIS 1974.

2. Human Resources and Sustainable development social indicators, strategies for the 90's. A discussion note, UNESCO, 1989.

3. Human Development Report, 1990, 1991, 1997 UNDP.

The research conducted in the 80's finally produced the expected results with this major innovation both at the conceptual level and at the level of measurement methods.[1] The refinement of the 1990 proposals led to the concept of sustainable human development which took into account the sustainable nature of the development process and meeting people's needs.

The limitation of basic indicators to three namely, life expectancy, literacy level (and subsequently, level of education) and per capita income constitutes a special datum, which does not necessarily reflect all the principal dimensions of socio-economic progress. However, the indicator is a great feat making possible, among other things, international comparability.

As the authors themselves have asserted, the tool is improvable.

Consequently, it is in this context that work is continuing with a view to improving tools. The initiatives of OECD, DAC (Development Assistance Committee) the World Bank and United Nations Agencies relating to the selection of key indicators for development management in shaping the 21st century [2-3] fall within these dynamics.

In the countries, the activities relating to collection, selection and applied research are mostly embobied in the orientations of the Framework of Action for Meeting Basic Education Needs and the World Declaration on Education for All.

Some significant progress has been made in the preparation of educational statistics in the various regions of the world, especially in basic education statistics. The Social Development Summit, the Beijing World Conference on Women and recently the World Conference on Higher Education, emphaszized the issue relating to the access of all to social services equity and the need to anticipate the future and promote peace and sustainable human and social development.

The comprehensive approach reflected by the paradigm « Learning to live together » has won worldwide consensus.[4] How is it possible to reflect this comprehensive, systemic approach in the evaluation of human being improvement, in the evaluation of national, regional and international progress in terms of human resource development?

1. Desai, M (1991). Human development concept and measurement in European Economic Review, vol. 35.

2. Shaping the 21st century : The contribution of development co-operation. OECD, DAC, May 96.

3. Joint OECD/UN/World Bank seminar on indicators of development progress, 20-21 May 1997.

4. This paradigm corresponds to one of the four pillars proposed by the report of the International commission on education for the 21st century : « *Education, The Treasure Within* »

III – Need for synthesis

Over and above the approach underscored, Education For All is one of the paramount demands for synthesis. Indeed, Education For All is not confined exclusively to basic education for all which is nontheless a basic component. Education For All, obviously encompasses all levels and forms of education.

Futhermore, the World Declaration on Higher Education stressed the issue of access to higher education for all and without discrimination.

Accordingly, in educational research and particularly in the design of new and appropriate analytical and evaluation instruments, a synthetic indicator capable of reflecting the trend of education for all is unquestionably topical. The world can no longer be satisfied with only partial indicators corresponding to various levels and forms of education. Several proposals relating to the aggregation of indicators have been formulated, such as the one related to the consolidated enrolment ratio for all reference age-groups combined. The enrolment ratio relating to the 6-23 years age-group was calculated. This ratio reflects the proportion of total enrolments at the three levels (primary, secondary and higher education) in relation to the total population of the reference age-group.

It was also proposed that the weighted average of the consolidated enrolment ratio and literacy rate be calculated to reflect the level of education [1].

Do the formulated level indicators resulting from the aggregation of elementary indicators make it really possible to evaluate the progress made in education at the global level ? It is certain that the problems relating to the definition of reference groups, which are variable according to the country, as well as the choice of weighting, all represent the difficulties posed by the problem of comparabilty and relevance given the diversity of realities worldwide.

Rather than tackling the issue of synthesis from the standpoint of aggregated educational levels would it not be better to consider it from the angle of the fundamental aspects of educational progress that make it possible to achieve the synthesis of educational progress according to the specified aspects ?

Such an approach resolves the difficulties underscored with respect to the aggregation of level indicators. Thus, aggregation according to the levels, would be substituted for the aggregation based on relative variations in relation to specific standards. In other words, the educational progress approach would be given priority consideration in relation to the « level of education attained » approach. As its name indicates, the Educational Progress Indicator draws on the suggested orientation.

1. Human Development Report 1997, UNDP.

IV - Constructing the Educational Progress Indicator (EPI)

The Educational Progress Indicator results from the combination of the relative deviations of three basic indicators in relation to the standards defined. These three indicators correspond to the crucial aspects of educational progress.

i) Choice of basic indicators

The choice of indicators is governed by taking into account the primordial aspects relating to meeting educational needs. Among these needs, are the following three aspects :

- *Primary education*

Basic education is a prime necessity, a fundamental right which should be guaranteed and preserved through continued efforts at improving the accessibility, access, relevance and quality of learning.

Although in 1990, over 128 million children of school-going age had no access to basic education, 10 years later, in spite of the real progress made, the needs are still considerable, particularly in regions such as Africa where the number of unschooled children tends to increase, and South Asia. Primary education as the basis of human resource development is therefore viewed as an imperative for sustainable development. Because without it, the future of human resources is mortgaged and hence, the economic performances which depend on them in the medium and long term.

Thus, the primary education indicator namely, the Net Enroment Ratio (NER) which is equivalent to the ratio of the schooled population of the official reference age-group to the total population of the same reference age-group corresponds to the first fundamental aspect of educational progress[1] retained in the construction of the EPI.

- *Functional literacy*

The alarm raised about the world " scourge " caused by illiteracy reflects undoubtedly, the crucial importance that should be given to the satisfaction of this vital need, for some 900 million persons one-third of whom are women. THe consequences of illiteracy are numerous with regard to mother and child health, family upkeep, local development of basic communities. It is worth noting today that in some Sahelian African countries in particular, eight to nine women out of ten in the rural area are illeterate.

Yet, these women constitute the principal source of wealth creation in the rural area especially in relatively unurbanized areas.

1. The crucial role of early childhood education leading to primary education is however worth noting. This education level falls within the framework of sharpening the awareness of children, developing their personality and improving the conditions of their access to primary education. It is an integral part of basic education.

For these reason, meeting the immediate educational needs of the majority of the populations in most developing countries is one of the keys to the achievement of national survival and socio-economic emancipation. The construction of the educational progress indicator cannot afford to exclude such a fundamental aspect.

Thus, the functional literacy rate[1] representing the ratio of the functionaly literate population aged 15 years and over to the total population aged 15 years and over was retained as a second basic indicator within the composition of EPI.

- *Attendance in higher education*

Although the quality of human resources depends basically on the quality of basic education, including the protection of and self-realization in early childhood, followed by the quality of secondary education, it also depends and especially so, on the quality of higher training on which depends in the final analysis the quality of the other levels of education.

Indeed, a qualitative training of trainers programme and the availability of competent researchers, technicians and managers constitute a primordial basis of support for socio-economic and cultural development in general, and educational development in particular.

The access to qualitative higher education without discrimination is an indispensable opening for laying the foundations of a sustainable growth and the basis of a sustainable human development.

This access is not limited to young people but targets also all actors who need to improve their knowledge, know-how and attitudes in a continous manner throughout life. Thus, the more actors there are in continued learning and training at a higher level, the more the country strenghthens its human resource potential and hence its development potential.

The close linkage between higher education and active professional life corresponds to a contemporary need for educational progress and socio-economic and cultural progress. Since the logical outcome of learning processes from the primary to the secondary level is to reach the highest level of acquisition of knowledge, know-how and attitudes, it is appropriate to retain as a third fundamental aspect, attendance at higher education level.

It is needless to recall that secondary education for its part, corresponds to a very important stage which prepares among other things, the ground for higher education.

1. The functional character of literacy was emphasized in order that literacy be delt with as an operational learning leading to directly useful acquisitions in everyday life.

Indeed, it constitutes, as stressed above, a link between primary education and higher education. Given the interdependence and the need to take into consideration the final educational product at the end of the learning chain, Higher Education Attendance Ratio (HAR) corresponding to the number of enrolments in higher education (Institutions of higher training and universities) per population of 100.000 inhabitants was selected. This ratio reflects the relative magnitude of higher education attendance in the population of the country under consideration.

Thus, the three basic indicator (NER, LIT, HAR) reflect three fundamental aspects which compose, to a large extent, educational progress synthesis, at present, in a large number of countries.

ii) Methods of determination of EPI

The method used draws on the distances of each level of indicators in relation to a specific minimum standard given a maximum standard.

• *Selected standards*

The minimum standards selected correspond to the historical minima registered for the three indicators during the base year considered here, the year 1995 being the last year for which full data were available fo the majority of countries.

• For the net enrolment ratio, the minimum value for all countries for which data are available is 25% corresponding to the level attained by Mali. As for the maximum rate it is obviously equal to 100%.

• Concerning the functional literacy rate, the minimum value observed in the base year is equal to 20% ; this corresponds to the level attained by Burkina Faso. The maximum rate for the indicator is indeed 100%

• Concerning the higher education attendance ratio, it will be observed that it is not a rate that represents a proportion as in the case of two preceding indicators. The minimum level registered for the indicator is 40 students per 100,000 inhabitants corresponding to one point close to the level attained by Mozambique in 1995.

As for the historical maximum level, it is equivalent to a ratio of 10,000 students to 100,000 inhabitants i.e. to the first decile (1/10). For the moment, the record levels are below 7000 students per 100,000 inhabitants.

All countries are aspiring for excellence and also for strengthening their human potential and especially their scientific, technical, cultural and managerial potential. Some more or less considerable efforts are being made to imprrove the access to and performances of higher education.

Thus, in the present era, attaining the first decile is a historical objective that Humanity can set itself.

• *Determination of levels of satisfaction*

For each value of the indicator Xi (i representing the country) is calculated a level of satisfaction Si corresponding to the following relative distance :

$$SiX = \frac{Xi - \min X}{Max\ X - \min X}$$

if Xi is the net enrolment ratio.

$$SiX = \frac{Xi - 25}{100 - 25}$$

Thus, for Benin which had a net rate of 59% in 1995, the level of satisfaction for this indicator is :

$$SiX = \frac{59 - 25}{100 - 25} = 45.3\ \%$$

For a net rate of 100% the level of satisfaction is indeed maximum (100%). when the net enrolment ratio corresponds to the historical minimum, the level of satisfaction is consequently nil (O%).

$$SiX = \frac{25 - 25}{100 - 25} = 0\ \%$$

Thus, for each of the three basic indicators, levels of satisfaction are determined on the basis of fixed standards. It is also worth remembering that for each value lower than the minimum standard, the level of satisfaction is considered to be nil (zero).

• *Calculation of EPI*

The Educational Progress Indicator will correspond to the average of satisfaction levels calculated for each country

Let (Xi, Yi, Zi) represent the three basic indicators respectively.

$$SiX = \frac{Xi - \min X}{\max X - \min X}$$

$$SiY = \frac{Yi - \min Y}{\max Y - \min Y}$$

$$SiZ = \frac{Zi - \min Z}{\max Z - \min Z}$$

$$EPI_i = \frac{SiX + SiY + SiZ}{3}$$

$$\boxed{EPI_i = \frac{\Sigma S_i m}{3}\ ;\quad m \in (X,Y,Z)}$$

For an example, for Canada, the calculation of the EPI for 1995 gives :

$$IPE = \frac{95 - 25}{100 - 25} + \frac{99 - 20}{100 - 20} + \frac{6984 - 40}{10000 - 40} = 87.3\ \%$$

The aggregate average level of educational progress would be 87.3%. This level is at the moment, the highest among all countries.

It is therefore possible to classify all countries having full data for the three indicators.

V – Special Features and Uses

The values assumed by the indicator range from 0 to 100%. The value (0) corresponds to the EPI of a country which has a level equivalent to the minimim standards (25, 20, 40) for the three basic indicators composing the EPI. On the contrary, the maximum value of 100% corresponds to the values of basic indicators equivalent to the maximum standards (100, 100, 10,000).

Thus, the EPI makes possible the comparability between countries in spite of differences of systems, on condition that the basic indicators be made available.

Furthermore, the Educational Progress Indicator can be applied to a subregion, or a group of countries. This is especially useful within the framework of an integration process aimed at the evaluation of the progress made in the development of human resources and the enhancement of human potential.

Although the comparison with a given date provides a possibility for classification, it is worth emphasizing that monitoring over time the progression of the indicator would be of great help, in that, it makes it possible to have an overall idea of educational progress in each country or group of countries. Different rates of progression by subperiods would emerge.

These variations should be analyzed bearing in mind the socio-economic, political and cultural factors which affect the overall trend of the educational system.

Educational Progress Indicator by virtue of its synthetic and holistic character, could be a part of a selection of development indicators and be taken into account in a multi-dimensional analysis of socio-economic and cultural progress.

Indeed, the need for systemic analysis are increasingly compelling the consideration of the educational dimension in the search for solutions to the problems of the society.

The determination of the female specific EPI also represents a means to evaluate overall performances in relation to the development priority pertaining the promotion of women and girls worldwide.

The trend in time of the female EPI appears to be a source of evaluation that makes it possible to draw justified conclusions in relation to gender issue.

Indeed, girls and women are taken into account at the initial stages of the calculation of EPI in the light of the very nature of the indicators composing it and covering inter alia, the educational needs of these two categories of beneficiaries.

Furthermore, given the considerable inequalities that exist in meeting the educational needs of women and girls in many countries, the female EPI could be used as an indicator for classifying the countries, and finally as a special indicator for evaluating the progress made.

Finally, for retrospective and prospective studies, the EPI would be a useful input in the light of its varied possibilities of use.

VI – Applications

Among the possible applications, it has been deemed useful to select some groups of countries with some economic or geocultural similarities, for which the Educational Progress Indicator is calculated on the basis of the period relating to the last decade of fully available data : 1985-1995. These results include the classification of countries, the determination of the first of each group, the trend of progress between the years 1985 and 1995.

• Selection of industrialized countries

On the basis of the 15 selected countries corresponding to the world's most industrialized countries, the calculated EPI lies within the range : 75% -90%. Canada thus tops the list with an EPI of 87.3%. It is observed that in the subgroup of the first four in 1985, there were changes in 1995. However, the country at the top of the list remained the same.

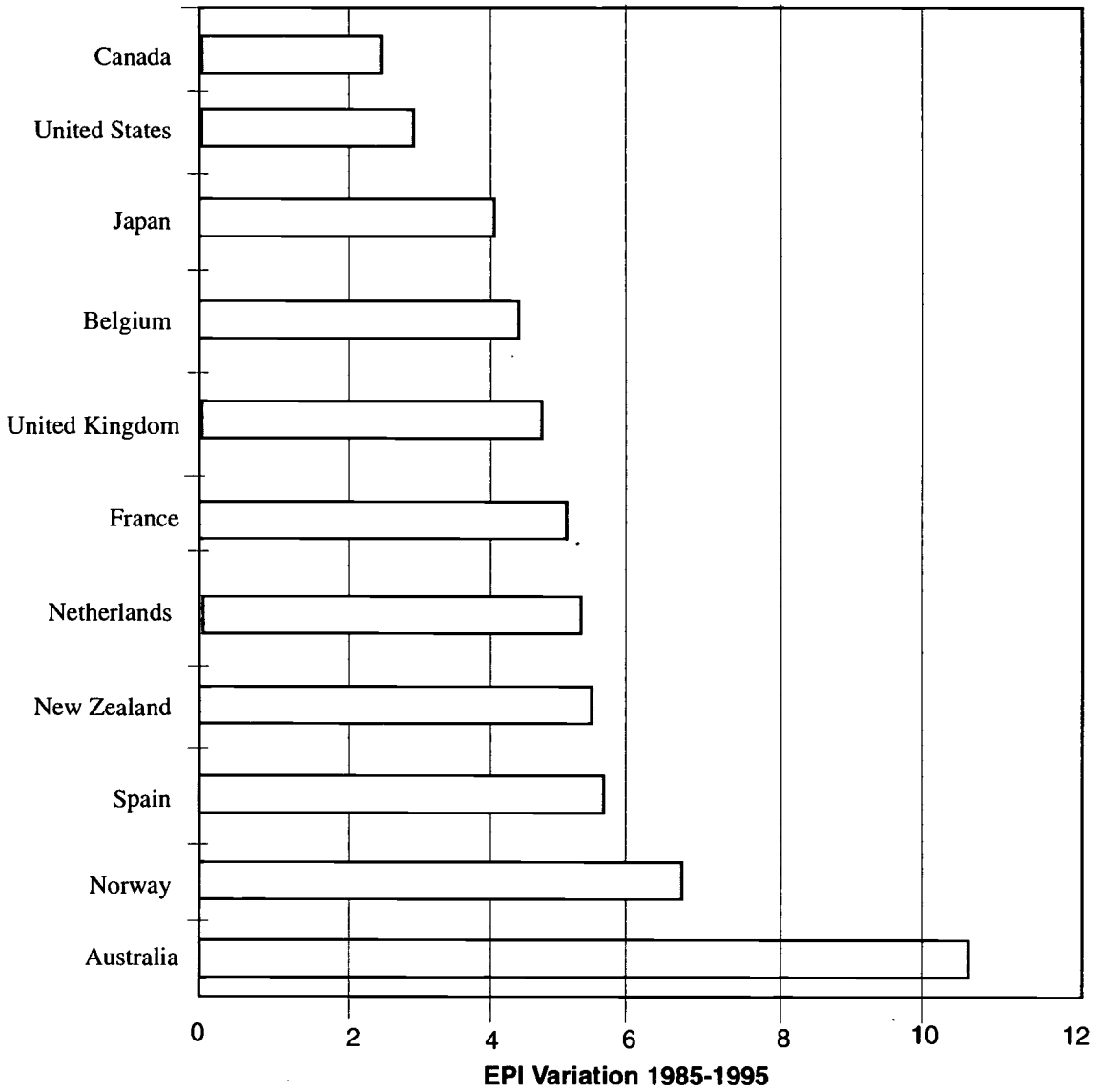
TOP_4 EPI 1985	TOP_4 EPI 1995
1 Canada	1 Canada
2 United States	2 Australia
3 New Zealand	3 United States
4 Australia	4 New Zealand

Australia registered a remarkable leap by climbing up to the 2nd place in 1995 after occupying the fourth place in 1985. The performance could be attributed to the considerable efforts which led to the expansion of higher education. In fact, from a level of 2366 students per 100,000 inhabitants in 1985, the higher education attendance ratio rose to 5401 in 1995 i.e. more than double.

Furthermore, by examining the magnitude of educational progress over the decade, through the calculation of the absolute change in the indicator between 1985 and 1995, Australia is far ahead of other countries with an absolute increase of 10.2 points as against 2.4 for the United States, 2.2 points for Canada and 5.5 points for New Zealand.

The classification by order of magnitude of the progress made over the decade period leads to the following distribution.

Classification according to EPI 1985-1995 Variation – Industrialized Countries Selection



It emerges from the results that there is a catch up phenomenon between the leading country and the others particularly, Australia, Norway, Spain, New Zealand, the Netherlands and France. These observed significant developments reflect the impact of the implemented policies, as well as the impact of social movements that condition the application of reform measures. As another revelation of the EPI, there is a remarkable difference with the classification based on the HDI (Human Development Index).

In fact, for the HDI calculated in 1995, the first five are Canada, France, Norway, United States and Finland. On the contrary, for EPI, the classification is the one already indicated. As regards the HDI of these countries in addition to education, the growth and life expectancy factors had a crucial influence.

EPI 1995 Indistrialized Countries Selection

COUNTRIES	Xi NER	Xi-25 / 100-25 Si X	Yi LIT	Yi-20 / 100-20 Si Y	Zi HAR	Zi-40 / 10.000-40 Si Z	EPI ΣSim / 3	EPI Rank	HDI Rank	EPI 1985	Δ EPI 1985-1995
Canada	95.0	0.933	99	0.988	6984	0.697	87.3%	1	1	85%	+2.3
France	99.0	0.987	99	0.988	3617	0.359	77.8%	8	2	72.5%	+5.3
Norway	99.0	0.987	99	0.988	4009	0.398	79.1%	6	3	72%	+7.1
United States	96.0	0.947	99	0.988	5395	0.538	82.4%	3	4	80.0%	+2.4
Finland	99.0	0.987	99	0.988	4033	0.401	79.2%	5	5		
Netherland	99.0	0.987	99	0.988	3485	0.346	77.3%	9	6	71.9%	+5.4
Japan	100	1.00	99	0.988	3139	0.311	76.6%	10	7	72.6%	+4.0
New Zealand	100	1.00	99	0.988	4603	0.458	81.5%	4	8	76.0%	+5.5
Sweden	100	1.00	99	0.988	2810	0.278	75.5%	14	9		
Spain	100	1.00	97,1	0.968	3858	0.383	78.2%	7	10	72.6%	+5.6
Belgium	98	0.973	99	0.988	3206	0.318	76.0%	12	11	71.9%	+4.1
Austria	100	1.00	99	0.988	2933	0.290	75.9%	13	12		
United Kingdom	100	1.00	99	0.988	3126	0.310	76.6%	11	13	72.2%	+4.4
Australia	98	0.973	99	0.988	5401	0.538	83.3%	2	14	73.1%	+10.2
Germany	100	1.00	99	0.988	2649	0.262	75.0%	15	15		

Source of basic data : World Education Report, 1998 UNESCO
Human Development Report, 1991-1998 UNDP
Statistical Yearbook, 1991-1997 UNESCO

• **African selection**

The determination of Educational Progress Indicator for the African selection in 1995 shows that all the values of the EPI obtained are lower than 60%. Mauritius tops the list with 59.5% followed by Swaziland, Tunisia, Botswana and Algeria.

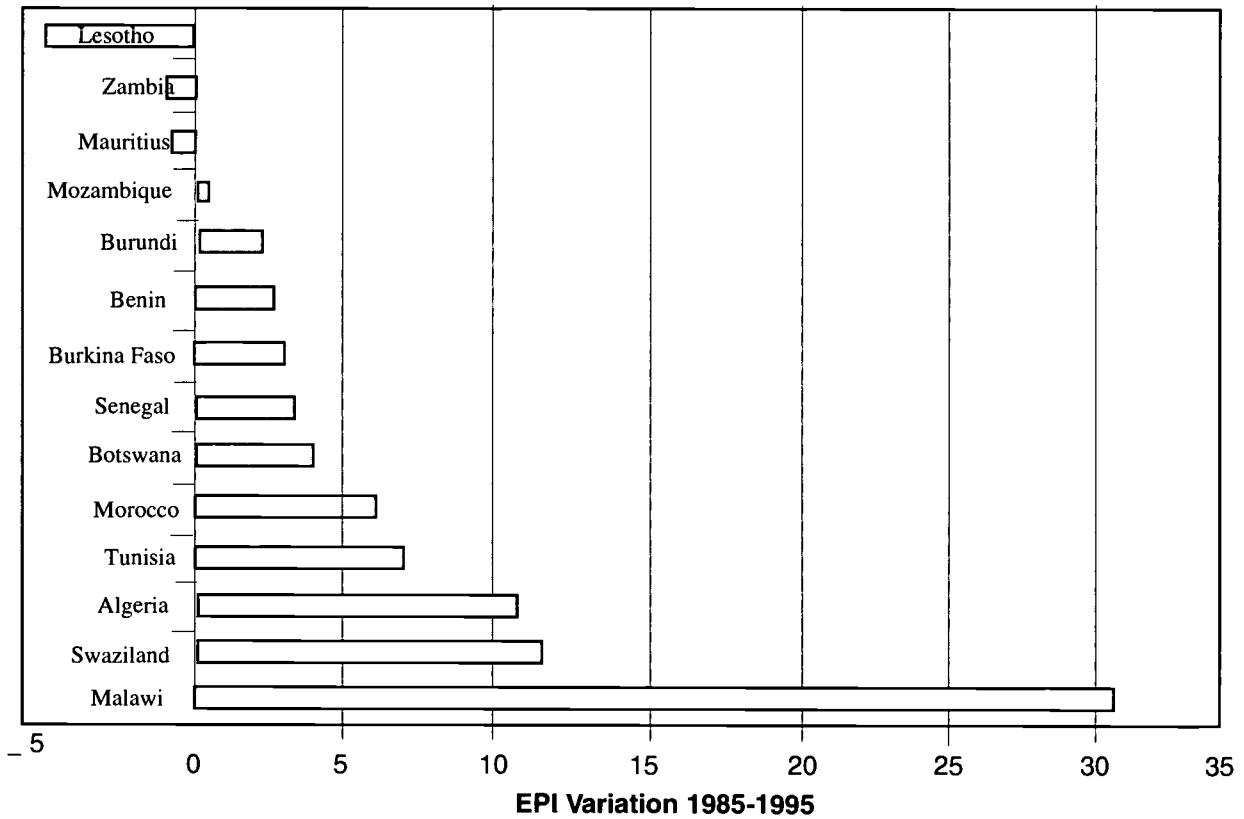
The comparisons of classification of the first 5 countries between 1985 and 1995 are as follows :

	TOP $_5$ EPI 1985		TOP $_5$ EPI 1995
1	Mauritius	1	Mauritius
2	Botswana	2	Swaziland
3	Zambia	3	Tunisia
4	Tunisia	4	Botswana
5	Swaziland	5	Algeria

One remarkable fact is the exit of Zambia from the group of the first 5 to the advantage of Algeria. Even for Zambia, a regression of 0.9 point in EPI in 1995 compared with 1985 is observed ; this is due to a fall of 13 points in the net enrolment ratio. Such a phenomenon is particularly observed in Lesotho, where the decline by 6 points in the net enrolment ratio between 1985 and 1995 negatively influenced the change in EPI during the period under consideration.

As for the performances in relation to educational progress over the decade period, Malawi stands out prominently as compared with the rest since it registers a positive variation of 31.4 points between 1985 and 1995 followed by Swaziland, a distant second (11.2 points) and then Algeria (10.4 points).

Classification according to EPI 1985-1995 Variation – Africa Selection



The specific case of Malawi may be due to the upswing of primary education which could be explained to a large extent, by the abolition of school fees. The net enrolment ratio therefore registered a spectacular leap of 57 points in 10 years, thus sanctioning universal primary education.

In the African selection, it is worth noting that there are 4 countries which do not attain an EPI of 20%. These are (in descending order of magnitude) Senegal, Burundi, Mozambique and Burkina Faso. Concerning the comparison of the HDI classification, with a few exceptions, the order seems to be relatively the same : five countries mantained exactly the same rank. For four other countries, the rank is lagged by one place.

This relative concurrence could be explained by the rigidities exerted on per capita income and longevity, which depend notably, on the generally low level of human resource development.

EPI 1995 African Selection

COUNTRIES	Xi- NER	Xi-25 / 100-25 Si X	Yi LIT	Yi-20 / 100-20 Si Y	Zi HAR	Zi-40 / 10.000-40 Si Z	EPI ΣSim / 3	EPI Rank	HDI Rank	EPI 1985	Δ EPI 1985-1995
Algeria	95	0.933	61.6	0.520	1126	0.109	52.1%	5	2	52.1%	+12.8
Benin	59	0.453	37	0.213	208	0.017	22.8%	11	8	22.8%	+5.5
Botswana	96	0.947	69.8	0.623	403	0.036	53.5%	4	4	47.6%	+3.1
Burkina Faso	31	0.080	19.2	0.0	96	0.006	2.9%	15	15	0%	0
Burundi	52	0.360	35.3	0.191	74	0.003	18.5%	13	14	9.4%	+1.9
Lesotho	65	0.533	71.3	0.641	221	0.018	39.7%	8	7	31.4%	–13.4
Malawi	100	1.000	56.4	0.455	76	0.004	48.6%	6	12	11.7%	+30.7
Morocco	72	0.627	43.7	0.296	1153	0.112	34.5%	9	6	0%	
Mauritius	96	0.947	82.9	0.786	564	0.053	59.5%	1	1	16.1%	+ 7,6
Mozambique	40	0.200	40.1	0.251	41	0.0	15.0%	14	13	57.2%	
Tanzania	48	0.307	67.8	0.598	43	0.0	30.1%	10	10	9.8%	-4.1
Senegal	54	0.387	33.1	0.164	290	0.025	19.2%	12	11	6.4%	
Swaziland	95	0.933	76.7	0.709	543	0.051	56.4%	2	5	44.5%	+ 11.5
Tunisia	97	0.960	66.7	0.584	1253	0.122	55.5%	3	3	40.0%	+8.8
Zambia	75	0.667	78.2	0.728	241	0.020	47.1%	7	9	43.0%	

Source of basic data : World Education Report, 1998 UNESCO
Human Development Report, 1991-1998 UNDP
Statistical Yearbook, 1991-1997 UNESCO

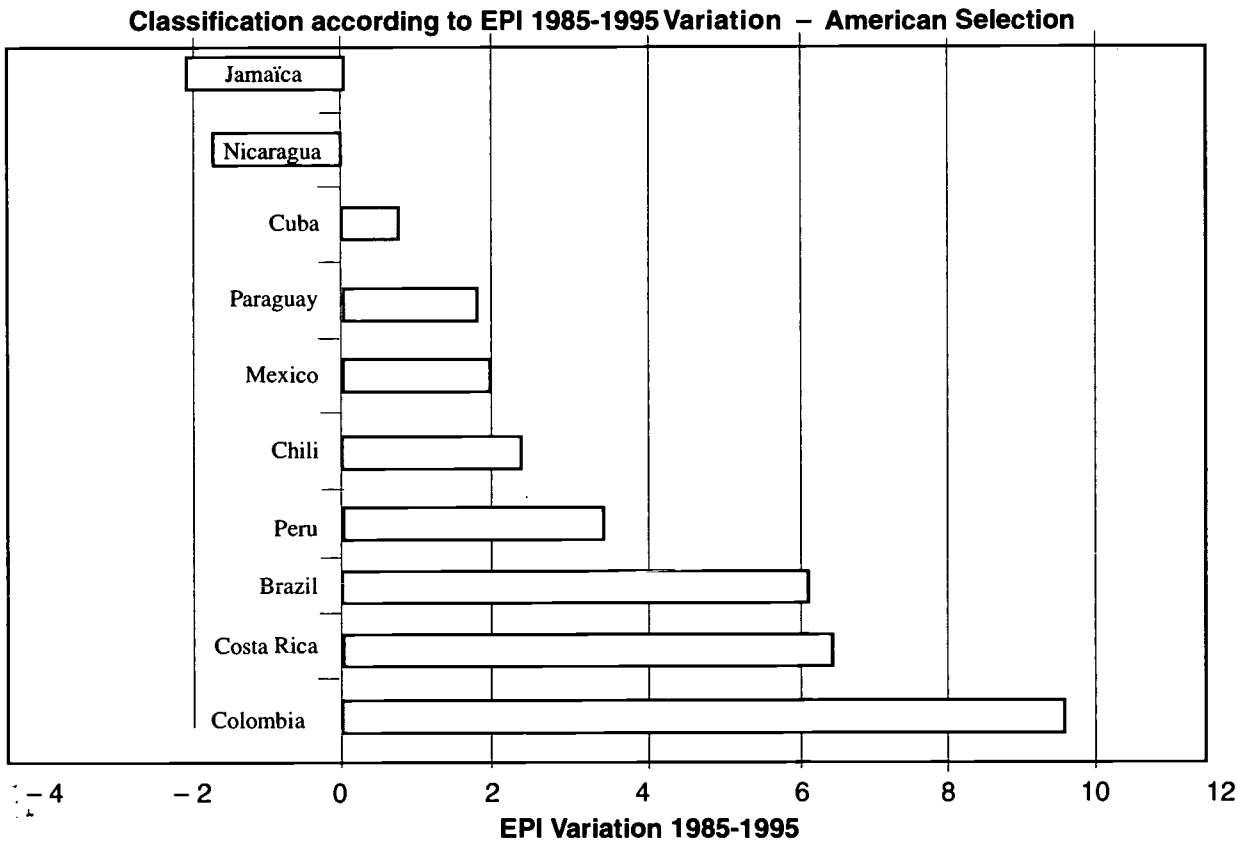
- **The American selection**

The American selection includes the countries of South America, Central America and North America, except Canada and the United States, which have full date for the three indicators.

The Educational Progress Indicator calculated for the selection reveals an interval of variations lying between 60 and 70% with a few exceptions. Uruguay comes first with 70% EPI in 1995 followed by Costa Rica, Peru, Cuba and Mexico. This classification differs from that established 10 years earlier in which Cuba topped the list with an EPI of 67.1%. The drop in Cuba's rank could be due mainly to the fall in the Higher Education attendance ratio which plummeted from 2325 students for 100,000 inhabitants in 1985 to 1116 students for 100,000 inhabitants in 1995 i.e. a reduction by half. The growing economic difficulties linked inter alia, to the three decade embargo have had serious repercussions on the social sectors particularly education.

TOP_5 1985	TOP_5 1995
1 Cuba	1 Uruguay*
2 Mexico	2 Costa Rica
3 Peru	3 Peru
4 Jamaica	4 Cuba
5 Costa Rica	5 Mexico

* The data for the calculation of the EPI in 1985 are not available



EPI 1995 American Selection

COUNTRIES	Xi NER	Xi-25 / 100-25 Si X	Yi LIT	Yi-20 / 100-20 Si Y	Zi HAR	Zi-40 / 10.000-40 Si Z	EPI ΣSim / 3	EPI Rank	EPI 1985	Δ EPI 1985-1995
Costa Rica	92	0.893	94.8	0.935	2919	0.289	70.6%	2	64.1%	+6.5
Cuba	99	0.987	95.7	0.946	1116	0.108	68.0%	4	67.1%	+0.9
El Salvador	79	0.720	71.5	0.644	2031	0.200	52.1%	14		
Honduras	90	0.867	72.7	0.659	985	0.095	54.0%	13	52.6%	+1.4
Jamaïca	100	1.0	85.0	0.812	667	0.063	62.5%	9	64.6%	–2.1
Mèxico	100	1.0	89.6	0.870	1586	0.155	67.5%	5	65.5%	+2.0
Nicaragua	83	0.773	65.7	0.571	1029	0.099	48.1%	15	49.7%	–1.6
Trinidad and Tobago	88	0.840	97.9	0.974	715	0.068	62.7%	8	62.8%	–0.1
Brazil	90	0.867	83.3	0.791	1094	0.106	58.8%	12	52.7%	+6.1
Chile	86	0.813	95.2	0.940	2412	0.238	66.4%	6	63.9%	+2.5
Colombia	85	0.800	91.3	0.891	1643	0.161	61.7%	10	52.2%	+9.5
Guyana	90	0.867	98.1	0.976	846	0.081	64.1%	7		
Paraguay	89	0.853	92.1	0.901	931	0.089	61.4%	11	59.7%	+1.7
Peru	91	0.880	88.7	0.859	3268	0.324	68.7%	3	65.0%	+3.8
Uruguay	95	0.933	97.3	0.966	2223	0.219	70.6%	1		

Source of basic data : World Education Report, 1998 UNESCO
Human Development Report, 1991-1998 UNDP
Statistical Yearbook, 1991-1997 UNESCO

Concerning the performances registered in terms of the trend of educational progress in 1995, as compared with 1985, it is rather Colombia which holds the record with +9.5 in terms of the positive variation of EPI ; it is followed by Costa Rica and Brazil.

Colombia's record is probably linked to the combination of the net progress registered in the field of primary education, literacy and higher education. The net enrolment ratio increased by 13 points over the period.

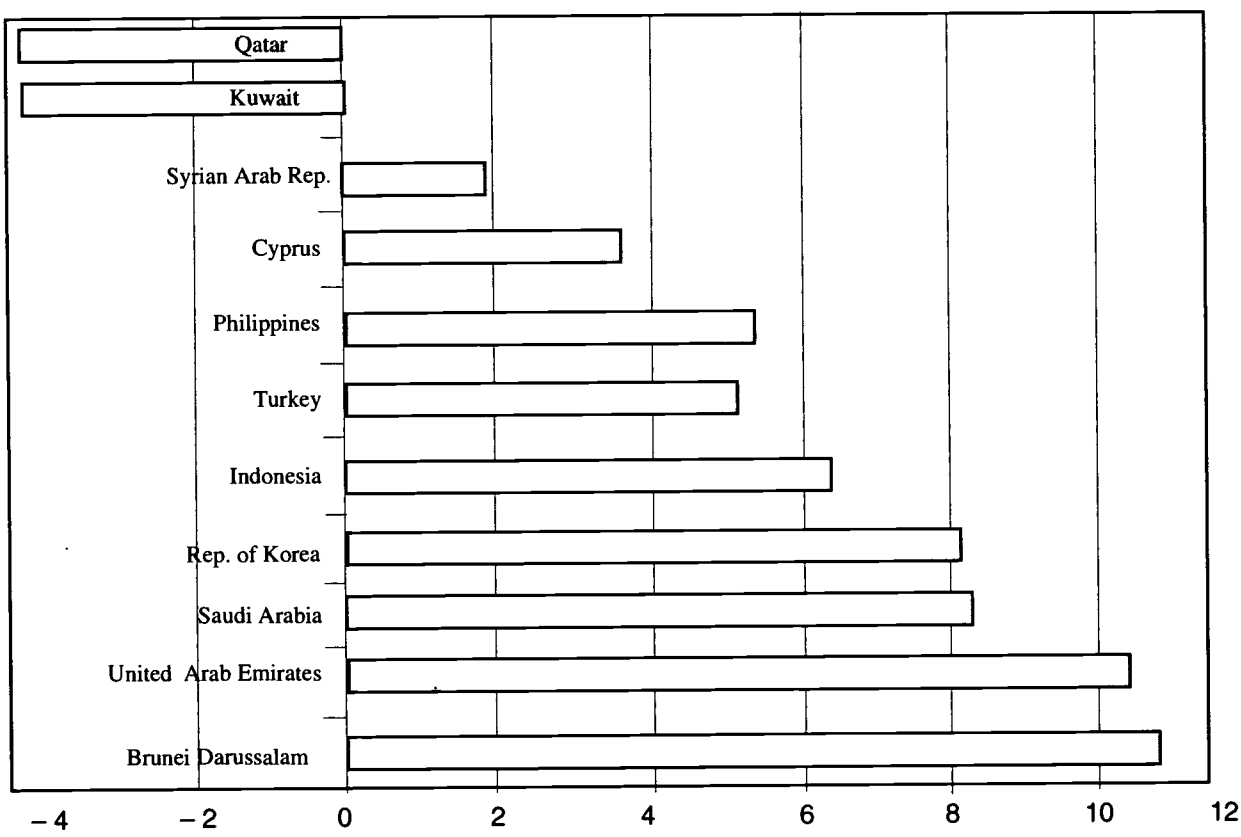
• Asian Selection

For all the 16 countries selected, the Educational Progress Indicator lies within an interval of 50% to 75%, with the exception of the Republic of Korea which exceeded the 80% limit in 1995. The 1995 classification on EPI basis puts in second position the Phillipines (73.3%) followed by Kirghizistan, Georgia and Cyprus. Ten years earlier, it was the same countries which asserted themselves as the first and second.

Concerning the absolute variation of the EPI between 1985 aned 1995, the countries which occupied the first position were : Brunei Darussalam (+ 10.9 points), United Arab Emirates (+10.6 points), Saudia Arabia (+8,3), and Republic of Korea (+8,2 points).

Some net declines in EPI were registered for Qatar and Kuwait during the decade period ; this was partly due to the decline in the net enrolment ratio (-11 points for Qatar and -22 points for Kuwait). The impact of the politico-military situation on education (related to the Gulf crisis) in the second half of the period is one of the crucial causes especially in the specific case of Kuwait.

Classification according to EPI 1985-1995 Variation – Asian Selection



EPI 1995 Asian Selection

COUNTRIES	Xi NER	Xi-25 / 100-25 Si X	Yi LIT	Yi-20 / 100-20 Si Y	Zi HAR	Zi-40 / 10.000-40 Si Z	EPI ΣSim / 3	EPI Rank	HDI Rank	EPI 1985	Δ EPI 1985-1995
Saudi Arabia	62	0.493	63	0.538	1280	0.124	38.5%	16	9	30.2%	+ 8.3
Brunei-Darussalam	91	0.88	88.2	0.853	514	0.048	59.3%	9	3	48.4%	+ 10.9
Cyprus	96	0.947	94.0	0.925	1191	0.116	66.2%	5	1	62.7%	+ 3.5
United Arab Emirates	83	0.773	79.2	0.740	493	0.045	52.0%	14	4	41.3%	+ 10.7
Indonesia	97	0.960	83.8	0.798	1146	0.111	62.3%	7	11	55.9%	+ 6,4
Georgia	82	0.760	99	0.988	2845	0.282	67.6%	4	15		
Kirghizistan	97	0.960	97.0	0.963	1115	0.108	67.7%	3	16		
Kuwait	65	0.533	78.6	0.733	2247	0.222	49.6%	15	5	53.1%	–3.5
Malaysia	91	0.88	83.5	0.794	971	0.093	58.9%	10	7		
Mongolia	80	0.733	82.9	0.786	1569	0.154	55.8%	12	13		
Phillipines	100	1.0	94.6	0.933	2701	0.267	73.3%	2	12	68.2%	+ 5.1
Qatar	80	0.733	79.4	0.743	1422	0.139	53.8%	13	6	57.4%	–3.6
Syrian Arab Republic	91	0.88	70.8	0.635	1690	0.166	56.0%	11	10	54.4%	+ 1.6
Rep. of Korea	99	0.987	98.0	0.975	4955	0.493	81.8%	1	2	73.6%	+ 8.2
Turkey	96	0.947	82.3	0.779	1930	0.190	63.8%	6	8	58.8%	+ 5.0
China	99	0.987	81.5	0.769	478	0.044	50.0%	13	14		

Source of basic data : World Education Report, 1998 UNESCO
Human Development Report, 1991-1998 UNDP
Statistical Yearbook, 1991-1997 UNESCO

By comparing the levels of EPI and HDI, one major difference emerges. While Cyprus occupies the first position with respect to HDI, it comes fifth in the regional selection. The Republic of Korea and the Philippines occupy respectively the 2nd and 12 th place with regard to the HDI for the same selection.

The application of EPI to the regional selections has thus made it possible to take a second look at the performances of educational progress in the various countries.

- **World Global trend**

Over and above the regional selections, how can we assess the trend of educational progress worlwide.

The application of EPI to the aggregated data shows that between 1960 and 1990, the indicator rose from a 33.4% level to 51.3% i.e. a progression of 17.9 points in 30 years ; this is relatively low (about 1/2 point of progression a year).

The combination of the situation between geo-political and cultural regions, and between industrialized regions and agrarian based economies confers such an orientation on EPI.

On the eve of the next millenium, Humanity, with an educational progress indicator of about 50%, has still some lengthy efforts to make in the field of education in order to meet basic needs. To attain a 100% EPI, education in the most underprivileged regions particularly, the region where the EPI is lower than 50% should be placed at the very centre of development concerns. For, there is no doubt that the number one raw material of the next millenium is human resource.

A look at the rate of educational progress from decade to decade reveals a continuous decline in rates since 1960. Indeed, from 6.8 points in 10 years during the decade of the 60s, this figure dropped to 5.6 points in the 70's and 5.4 points in the 80's.

IPE MONDE

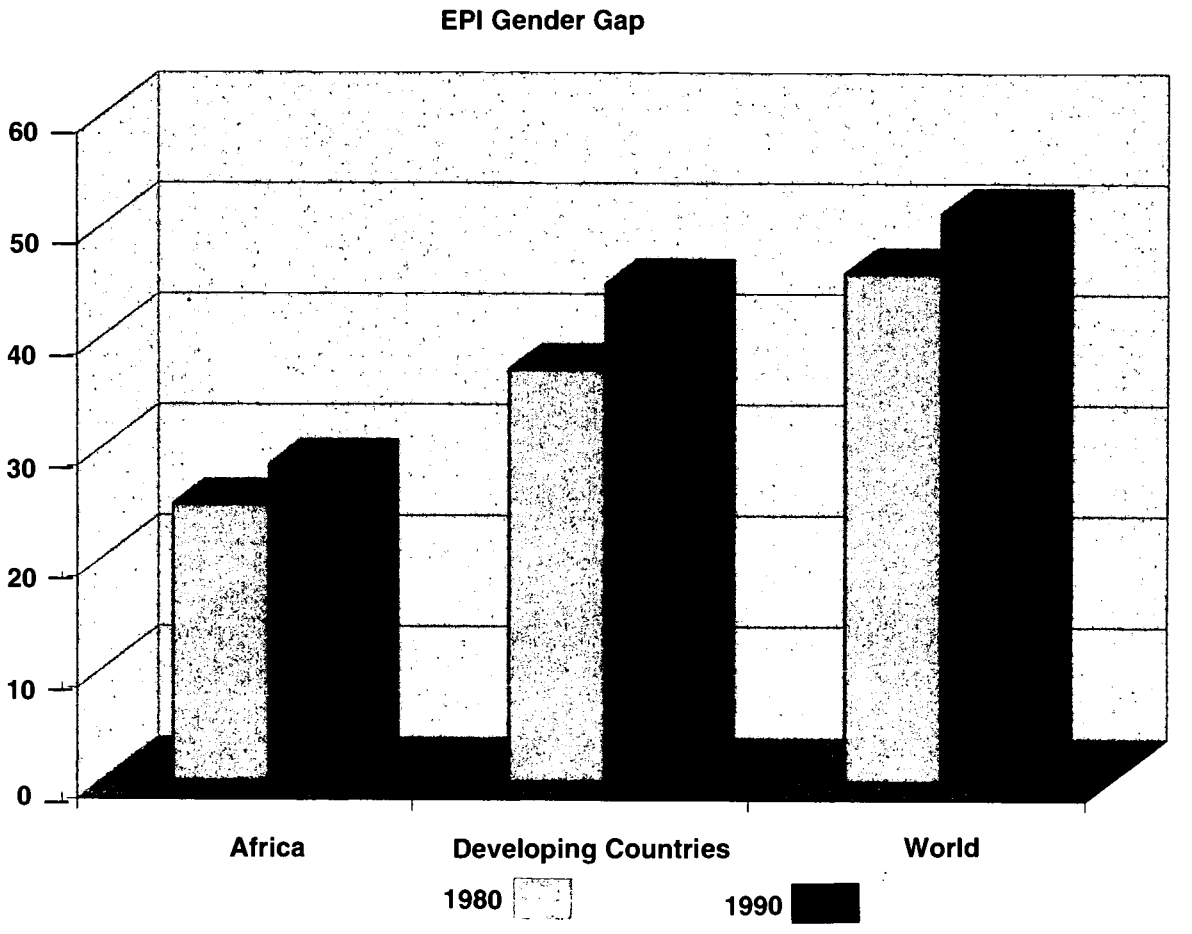
	Xi NER	$\frac{\text{Xi-25}}{\text{100-25}}$ SiX	Yi LIT	$\frac{\text{Yi-20}}{\text{100-20}}$ SiY	Zi HAR	$\frac{\text{Zi-40}}{\text{10000-40}}$ SiZ	EPI $\frac{\Sigma \text{ Sim}}{3}$
1960	59	0.453	60.7	0.509	425	0.039	33.4 %
1970	65.5	0.540	67.6	0.595	751	0.071	40.2 %
1980	73.3	0.644	69.5	0.619	1150	0.111	45.8%
1990	79.0	0.72	75.3	0.691	1300	0.127	51.3 %

The decline in rate reflects the growing socio-economic difficulties associated with the still prevailing general crisis. In particular, during the 80's the crisis reached some unexpected proportions together with its political and social consequences in most regions of the world.

Apart from the global trend, the progression of developing countries deserves special attention. During the decade of pronounced crisis (1980/90), the educational progress for developing countries stood at 44.8% in 1990 after having risen by 7.7 points since 1980.

Among these countries, Africa occupies a critical position : 28.4% for EPI in 1990 i.e. a difference of more than 16 points in relation to the average level registered by developing countries. It is worth noting that the rate of progression of EPI in Africa from 1980 to 1990 is also lower than the developing countries' average : 3.6 points in 10 years as against the 7.7 points mentioned above.

Africa's situation should not be surprising particularly with the decline in per capita public expenditure on education, which dropped from $ 48 in 1980 to 41 $ in 1990, while at the same time, expenditures similar to those at the world level rather increased by more than 60% to reach the level of $ 202 per capita in 1990.



EPI Developing Countries

Years	Xi NER	Xi-25 / 100-25 SiX	Yi LIT	Yi-20 / 100-20 SiY	Zi HAR	Zi-40 / 10000-40 SiZ	EPI ΣSim / 3
1980	69.3	0.591	58	0.475	503	0.046	37.1 %
1990	76.5	0.687	67.2	0.590	707	0.067	44.8 %

EPI Africa

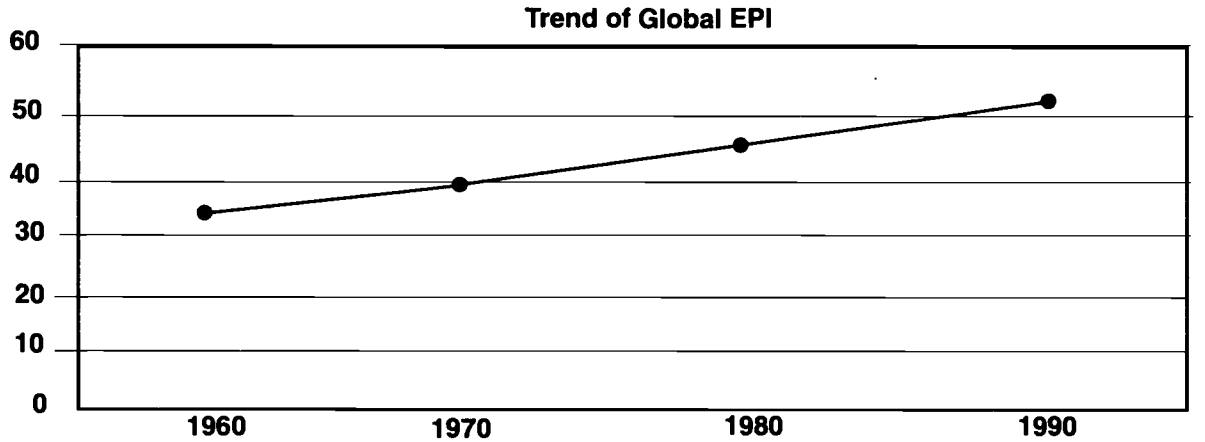
Years	Xi NER	Xi-25 / 100-25 SiX	Yi LIT	Yi-20 / 100-20 SiY	Zi HAR	Zi-40 / 10000-40 SiZ	EPI ΣSim / 3
	40.4	0.205	29.4	0.118	133	0.009	11.1 %
	60.3	0.471	39.8	0.248	324	0.028	24.9 %
	57	0.427	50.8	0.385	454	0.042	28.4 %

Over the the same period, for all developing countries, an average progression of 29% was registered.

On the whole, the global trend examined on the basis of the 1960-1990 three decade period reveals that the 100% EPI would be attained only after a period of 7 decades i.e. by 2071[1].

Does humanity need to wait for 7 decades to attain the 100% objective ?

In these circumstances, some billions of persons would be sacrificed. This situation should be avoided. On the contrary, an attitude of indefference cannot resolve the problem ; actig fast and well should be the credo for the current period and the three decades ahead. There is need to make untiring and effectively sustained efforts because the survival of Humanity is at stake.



1 The adjusted straight line with the equation y = 0.6 x + 33.4 gives for Y = 100, the value of X = 1 11 years (from the origin : 1960).

VII – Monitoring the Education of Women and Girls

The Educational Progress Indicator offers the possibility of monitoring in terms of gender. The calculation of female sex specific EPI (EPI-F) leads to assessing the trend of progress made with regard to female education.

It it observed that at the global level, EPI-F stood at 46.2% in 1990 as against 39.6% in 1980 i.e. a progression of 6.6 points which is higher than the progression of the preceding decade. In the case of Africa, the progression of EPI-F changed from 13.7 points in 1970/80 to 4,6 points in 1980/90. With the low level of EPI-F (29% in 1990), the slowdown observed can be partly attributed to the consequences of the austerity policies implemented.

However, it is worth noting that the gender gap with regard to educational progress in Africa declined by 2.6 points between 1980 and 1990.

Concerning all developing countries, the EPI-F which was 38.1% in 1990 increased by 9.3 points over the 1980 decade, that is, more than double the African progression. Hence, global efforts in the education of girls and women in all other developing countries are more conclusive than those specific to Africa.

World - EPI-F Female Educational Progress

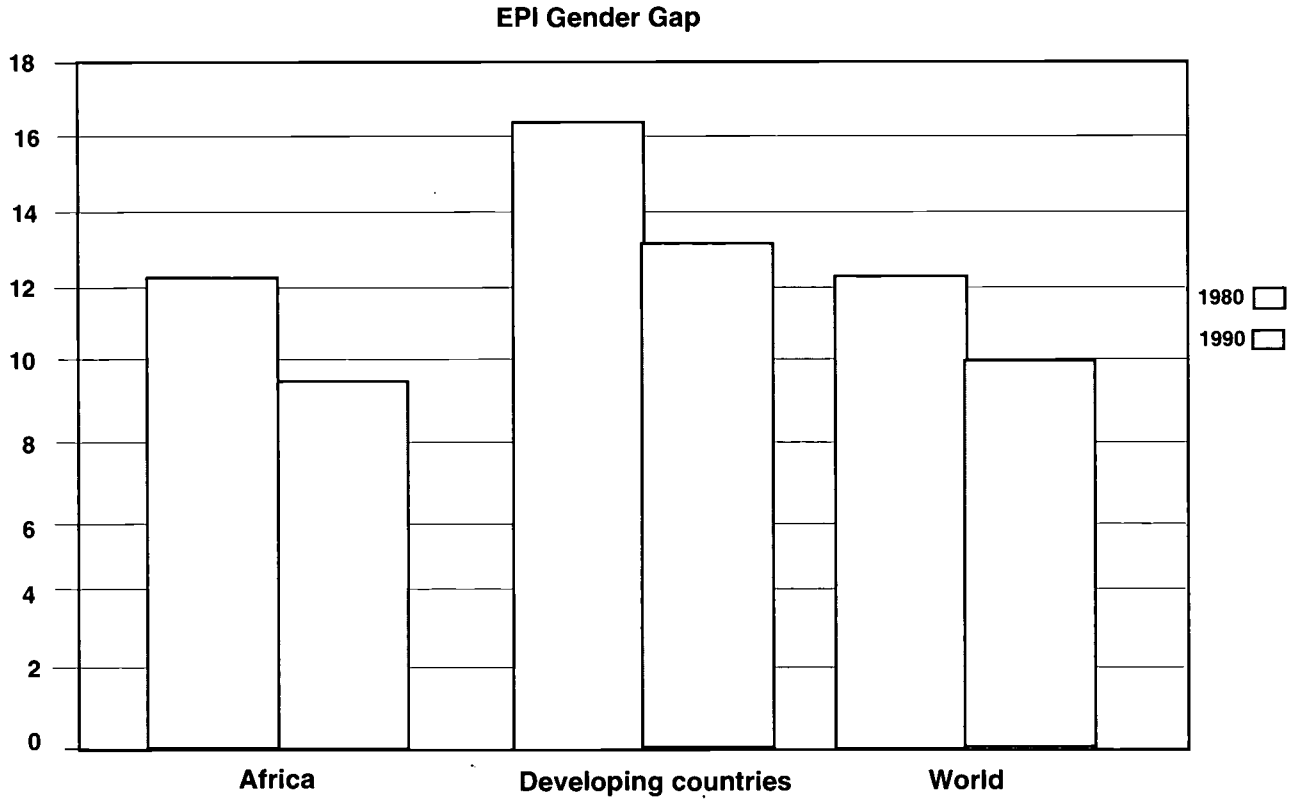
	Xi	SiX	Yi	SiY	Zi	SiZ	EPI-F
1970	60.1	0.468	61.9	0.524	569	0.053	34.8 %
1980	67.5	0.567	61.9	0.524	1022	0.099	39.6 %
1990	74.6	0.661	68.7	0.609	1202	0.117	46.2 %

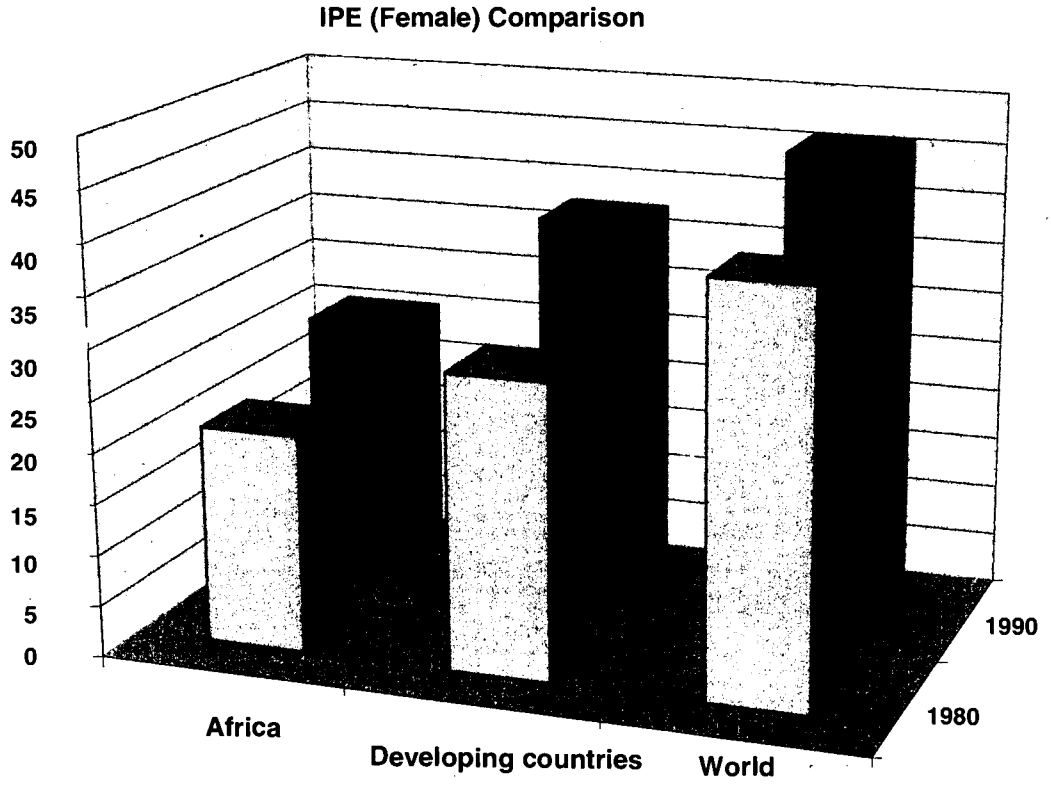
Africa IPE-F

	Xi	SiX	Yi	SiY	Zi	SiZ	EPI-F
1970	33.2	0.109	29.4	0.118	60	0.002	7.6 %
1980	53.4	0.379	39.8	0.248	174	0.013	21.3 %
1990	52.4	0.365	50.8	0.385	301	0.026	25.9 %

Developing countries IPE-F

	Xi	SiX	Yi	SiY	Zi	SiZ	IPE-F
1980	62.4	0.499	46.8	0.335	352	0.031	28.8 %
1990	71.3	0.617	57.8	0.473	558	0.052	38.1 %


EPI Gender Gap
18
16
14
12
10
8
6
4
2
0
1980
1990
Africa
Developing countries
World


IPE (Female) Comparison
50
45
40
35
30
25
20
15
10
5
0
1990
1980
Africa
Developing countries
World

EPI-F
Africa Selection

A review of the situation for the region having the most critical level with respect to the education of women and girls shows significant differences within the selection. The classification based on EPI-F in 1985 shows the top five countries of the group.

TOP_5 EPI-F 85

1	Mauritius
2	Malawi
3	Botswana
4	Swaziland
5	Zambia

On the basis of available data for 1995, the classification by order of magnitude of the progression for the EPI-F from 1985 to 1995 put Malawi first with +30.7 points, followed by Algeria (12.8 points), Swaziland (11.5 points).

As for low performances with regard to the education of women and girls over the periode, the case of Lesotho will be underscored with a decline of 13.4 points in terms of EPI-F and -4 points in the case of Mozambique. These declines could be due to the decline in girls' education whose net enrolment ratio shows a reduction of 10 points in Lesotho and 12 points in Mozambique.

Generally, regarding women and girls, Africa should meet the historical challenge of making up for its belatedness in relation to the average for developing countries and subsequently in relation to the World average.

EPI-F 1995 African Selection

COUNTRIES	Xi NER	Xi-25 / 100-25 Si X	Yi LIT	Yi-20 / 100-20 Si Y	Zi HAR	Zi-40 / 10.000-40 Si Z	EPI-F ΣSim / 3	EPI-F 1985	Δ EPI-F 1985-1995 points
Algeria	91	0.880	49.1	0.364	844	0.081	44.2%	31.4%	+ 12.8
Benin	43	0.240	25.8	0.073	71	0.003	10.5%	5%	+5.5
Botswana	99	0.987	59.9	0.499	376	0.034	50.7%	47.6%	+3.1
Burkina Faso	24	0	9.2	0	43	0	0%	0%	0
Burundi	48	0.307	22.5	0.031	38	0	11.3%	9.4%	+1.9
Lesotho	71	0.613	62.3	0.529	224	0.018	38.7%	52.1%	–13.4
Malawi	100	1.0	41.8	0.273	43	0	42.4%	11.7%	+30.7
Mali	19	0	23.1	0.039				0%	
Morroco	62	0.493	31	0.137	834	0.080	23.7%	16.1%	+7.6
Mauritius	96	0.947	78.8	0.735				57.2%	
Mozambique	35	0.133	23.3	0.041	18	0	5.%	9.8%	–4.1
Tanzania	48	0.307	56.8	0.460	14	0	25.5%		
Senegal	48	0.307	23.2	0.040				6.4%	
Swaziland	96	0.947	75.6	0.695	422	0.038	56.0%	44.5%	+11.5
Tunisia	95	0.933	54.6	0.433	1024	0.099	48.8%	40.0%	+8.8
Zambia	75	0.667	71.3	0.641				43.0%	

Source of basic data : World Education Report, 1998 UNESCO
Human Development Report, 1991-1998 UNDP
Statistical Yearbook, 1991-1997 UNESCO

VIII – Prospects

With the Educational Progress Indicator, new prospects emerge with regard to international, regional, subregional comparability and the national monitoring of educational progress. The indicator could be included in the composition of indicators for development.

In the light of the varied levels of development, some countries among the industrialized countries could reach in the not too distant future (one to two decades), the 100% maximum level. On the other hand, many other countries will still require several decades to attain it.

Accordingly, throughout this historical period for which it is not possible to set a deadline, the EPI could play a non-negligible role in the overall and differential evaluation of the educational progress registered, based on gender or other criteria.

When the world reaches the 9th and 10th decile, that is with EPI from 90% to 100%, a historic choice will emerge for changing the composition of the EPI. For example, two other indicators could be selected in place of the first two basic indicators : first, the rate of functional literacy in computer techniques and new communication technologies. Indeed, the 3rd millenium will be marked by some considerable advances in the information revolution combining communication and articificial intelligence. The citizens of the globalizing world, who may not be trained to the new language and means of communication, work and leisure will be as handicapped as, if not more handicapped than the illiterates of today.

The second suggested indicator is the percentage of secondary school leaving certificate holders. After universal primary education, interest will now be more specifically focused on the efficiency of learning at the secondary education level. Among the various indicators available, the percentage of secondary school certificate holders would make it possible to partly evaluate the performances registered at that level.

As for the third indicator, it would be the same as in the original version of the EPI : the number of students per 100.000 inhabitants. The new objective however, could be to attain the second decile (2/10) or any other standard approved by common consent.

In tackling the issue of prospects, the need to take into account the quality dimension deserves attention. Although at one same level of EPI there may be qualitative differences in the education system, generally, the improvement of quality is a pre-condition for attaining higher levels for the three basic indicators. Indeed, the quantitative leap will be

achieved only if the school is attractive and accessible and if the education offered is efficient and higher education motivating.

Ensuring that the populations believe in education means that education should be relevant, qualitative and useful for life.

Furthermore, the countries that have a high level of EPI have had to invest in quality including the improvement of the physical, environmental and psycho-pedagogic conditions of learning.

Finally, for each level of EPI attained, the countries will ensure that there is increasing quality in the contents and processes of learning as well as in the continued assessment of the Education-Human Development relationship. The specific studies on quality will further strengthen the results obtained with the Educational Progress Indicator.

IX – Conclusion

As a synthetic tool, the Educational Progress Indicator is aimed at facilitating the analytical assessment and projection work of educational planners, managers and actors and also of policymakers. Indeed, it meets an expectation expressed long ago.

Thus, within the framework of progress monitoring in Education For All which goes beyond basic education for all, EPI according to various modes of use could be of great help since the needs are real.

Furthermore, a review of numerous retrospective studies based on the new indicator, provides clues for re-evaluating the progress made and hence, for undertaking a better justified, overall and differential assessment.

Comparability between the countries of one same subregion or region and at the international level would be a source of emulation based on the constant improvement of performances in the field of education.

Finally, the Education Progress Indicator is a contribution to the advancement of education in the world, a contribution to the progress of Humanity in what it has and considers as sacred, namely the human being.

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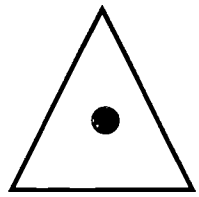

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