Human Capital Formation in the Era of Resource Exploitation in Chad: A Survey of Major Actors in Charge of Human Capital and Natural Resources

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ABSTRACT: This paper examines the contribution of natural resources to the growth of human capitalstock in Chad. Indeed, natural resources are known as the main lever for the development ofdeveloping nations; particularly education. However, the natural resource curse phenomenon stronglyinfluences the production of human capital in developing countries. The question being to know whatis the effect of natural resources in the formation of human capital in the education sector in Chad? As part of this research, we opted for a hypothetical-deductive approach with two secondary hypotheses, namely: natural resources positively impact human capital in Chad and human resourcemanagement negatively influence the education sector in Chad. The questionnaire was administeredto 356 teachers in the French-speaking public sector. The results show that natural resources influencehuman capital, especially education (Ross, 2004). However, with regard to the management of humanresources in the education sector, the results show that the exploitation of natural resources does notallow good management of human resources. The negativity of the contribution of Natural Resourcesto the management of human resources is thus verified (Gylfaçon, 2001). Theoretical and managerial implications are proposed, as well as proposals for future research arisingfrom the limitations of the study.

KEYWORDS: natural resources, educational system, human capital, Human Resource Management

1. INTRODUCTION

The endowment with natural resources has been for several centuries a sign of prestige and power of civilizations. History has named several periods of our development with reference to natural resources. Certain periods of our history are named by the age of cut stone, the age of polishedstone and the age of metals. It is a perfect illustration of the impact of natural resources in social life(Ghamsi, 2021). Natural resources are thus also at the origin of the economic and social take-off of several countries and their abundance is thus a real vector of viable growth.

Recently, Sachs and Warner (1995, 1997) highlighted the phenomenon of the "ressource curse"of natural resources. They demonstrate that the countries richest in natural resources are the poorest.In other words, countries that have an economy dependent on natural resources have weak growth compared to those that are less dependent.

The observation seems to be obvious in Africa, some countries like Chad, rich in natural resources, especially oil, are still among the poorest countries in the world. Auty (1993) was the first to use this concept, amply demonstrates this paradox.
The concept of the natural resource curse was popularized by Sachs and Warner (1995). The latter weretheoretically based on the "Dutch syndrome", or " Booming Sector " highlighted by Gregory, 1976; Corden , 1984; Corden and Neary , 1982. In a simplified way, this Dutch "disease" is described as the set of harmful effects created in an economy by the expansion of the sector which produces the natural resource.

The curse affects the oil-producing countries of the Third World, having based their budgets largely on revenues from natural resources. When oil prices decline globally and fiscal spending exceeds natural resource revenues, the country struggles to cope (Ngaougoué , 2016).

However, the phenomenon of the curse of natural resources is not limited to the negative effect of naturalresources on economic aggregates (GDP, GNP, State expenditure, etc.), but is primarily explained by a capitaldeficit. in countries that are resource dependent (Gylfason , 2001; Birdsall et al, 2001 and Behbudi et al, 2010).These researchers show that the resource curse stems from

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the fact that countries that are rich in these resourcesinvest very little in human capital. However (Magrin , 2005), think that the African countries rich in natural resources, invest for the majority, in the priority sectors of which education and health.

Indeed, the concept of capital has benefited from the attention of several researchers since 1776 by Smith, then in 1961 , Schultz founded the theory of human capital. It was taken up by Becker (1964), his successor thus offering theoretical and empirical analyzes of the links between investment in human capital and remuneration.

Becker (1964), defined human capital as the set of productive capacities that an individual acquires by accumulating general or specific knowledge, know-how, etc. Human capital thus constitutes the stock of technical knowledge and skills that characterizes the work force of a nation and which results from an investment in education and lifelong training (Tchouassi , 2016). Having originated in economics, the conceptof human capital migrated to management science from the end of the 1990s, notably through researchers in strategic human resource management (Hitt, 2001) .

Becker (1975), essentially emphasizes that according to the principle of human capital theory, educationand vocational training are experienced by the individual, as investments. To do this, it will be necessary to invest in training and capacity building of human resources in order to increase productivity. It is the same fora state that wants to embark on the path of development, because education and health are thus the main basesof sustainable growth. But in sub-Saharan Africa in general, very little importance is given to human capital. In Chad, for example, despite the economic potential, the populations are not educated , and the health systemis gloomy.

Chad's economy after independence was long dominated by production in the primary sector (contributing nearly 35% of GDP), on the other hand, the secondary sector contributes about 14% of GDP. Because Chad has assets that are favorable to it in the practice of agriculture (soil fertility, large cultivable area).

In the early 2000s, Chad embarked on the effective exploitation of oil and its transport for export, via the Chad-Cameroon pipeline project. A few years later, more precisely in 2005, Chad also embarked on the exploitation of mineral resources. In addition to oil, Chad's subsoil is also home to precious metals such as gold and diamonds.

Chad is ranked as the 10th producer in Africa, each with a production of 120,000 barrels per day and representing 1.4% of African production. In the world ranking, this country appears at the 44th [rank] .

Since the discovery and exploitation of oil resources, Chad has invested in the field of education. The education enrollment rate has increased significantly in recent years;

The Chadian government remains very optimistic regarding the increase in well-being and the development of populations. Because there is an improvement in living conditions. In addition, in 2012, an interim strategy for education and literacy is set up to strengthen and improve the education system. It presentsvery encouraging prospects as shown in Table 25

Despite these advances, Chad is among the top 5 least developed countries on the planet with a development indicator of 0.367. This country is ranked 186th in [the] world ranking. In addition, Chad is considered to be the least educated country in CEMAC with an education enrollment rate of less than 30% ofthe total population.

According to Gylfason (2001), the curse of natural resources stems from the fact that countries rich in basic resources invest very little in education. Similarly, Shao and Yang (2014) demonstrate that countries exposed to the natural resource curse are those with low investment in human capital

Many African countries have understood this and are nowadays investing quantitatively in education . In Chad, for example, the exploitation of oil in 2003 made it possible to increase the budget of the Ministry ofNational Education by 2.80 billion CFA francs, to recruit a large number and to strengthen the capacities of State agents. through continuing education nationally and internationally. The Chadian State has thus invested large sums in national education.

However, the question posed in this paper is to know the effects of the exploitation of natural resources on human capital in Chad. Our study aims to analyze the impact of natural resources on human capital, particularly education. Specifically, the aim is to assess the relationship between NR and the education system in Chad on the one hand, and to measure the link between HRM and the performance of the education system in Chad on the other hand.

To do this, two assumptions are made, namely:

1. Natural resources positively influence human capital in the education sector in Chad.

2. Human resource management negatively influences the performance of the education sector in Chad. Aneconometric approach is used with surveys.

2. LITERATURE REVIEW

Schultz (1961) remains the pioneer theorized on human capital. Indeed, the theory of human capital essentially emphasizes that the company's investments in human training contribute to improving the quality of the work provided but also to increasing the

income of workers. In other words, when the employees are trained, they are able to contribute with more effort (knowledge) to the perfect execution of their tasks and in the end it is the organization that wins. This contribution will also give them the opportunity to earn an additional salary. To do this, it retains 5 main axes to improve human capital. These are health infrastructure and services, vocational training (seminars and training workshops), the elementary, secondary and higher education system, study and training programs for adults (not organized by companies) , and finally the migration of individuals and families to seize job opportunities.

Becker (1964) his successor, defined human capital as the set of productive capacities that an individual acquires by accumulating general or specific knowledge, know-how, etc. He includes in his definition the accumulation of practical experiences in his work " Human capital" (1964). In other words, physical and moral health as well as education are the key factors for growth. One might think that human capital theory would share its roots with needs theory. Indeed, physical and psychological health are the sine quinone conditions for any growth. This theory indeed illustrates that the human resources of the education sector must be motivated so that they produce a qualitative output. Considering that the exploitation of natural resources constitutes an added value for the financing of education.

Education is then at the hinge of the theory of human capital. It is considered by Arrow, 1962 and Mincer , 1974 as endogenous growth factors. According to Mankiw , Romer and Weil (1992), human capital is as important as financial capital. The new growth theories place human capital at the very center of the development process in Third World countries. This is why countries with natural resources must invest in human capital in order to guarantee their growth. However, a number of conditions related to political stability, security and justice are necessary for its application.

A review of the literature on the relationship between natural resources and human capital can be based above all on qualitative analyzes of this relationship. Consistent with endogenous growth theories, one of the most robust and recurrent findings of empirical work is that the investment of natural resource revenues in human capital formation has a significant impact on growth rates. long-term countries (Tchouassi , 2017).

Studies by Figlio and Kenny (2007) conducted among 1,300 schools in the USA, reveal that "school performance", moreover, the production of teachers is higher in schools that pay their teachers better and on merit than in those where teachers are not well paid. Kellough and Nigro (2002) find a mixed record of merit pay after a 5-year study of 3,000 Georgia state employees. They believe that merit pay can be a source of motivation just as it can also be a source of demotivation, when it gives rise to feelings of jealousy among workers.

Similarly, Henneman and Young (1991) in a study of 120 school administrators in an American district evaluated the effects of a compensation program on motivation. They discover that merit pay is not well received because it only offers monetary rewards. On the other hand, the administrators would prefer to benefit from a fixed salary increase rather than benefit from bonuses following the achievement of results.

Perry and Porter (1982), in their study on the sources of motivation in the public service, affirm that it is the values of the civil servants which, *in fine* , would play a central role in the success or otherwise of this mode of remuneration. In fact, for teachers in the public sector compared to their colleagues in the private sector, the authors claim that monetary and economic gains do not systematically interest public sector agents in view of their effort. Wright at al., (2007) support this claim because public sector employees are driven in part by altruistic goals and to be of service to society.

This is why Papyrakis and Gerlagh (2004) add that corruption has a negative impact on growth. To this Bulte et al. (2005) distinguish renewable natural resources from non-renewable natural resources. According to them, only resources extractable at a single point (mine, oil) would be negatively correlated with the quality of institutions. The resources whose distribution on the territory is diffuse (forest, agriculture) would not be correlated with the quality of the institutions.

Atkinson and Hamilton (2003), expand on the idea of the curse by claiming that it is a symptom of the government's inability to manage the large revenues associated with natural resources. This mismanagement of state assets by the government also has repercussions in the field of education (human capital). According to Gylfason (2001), half of the consequences of mismanagement of natural resources go through the negative impact of these on education, hence on health. Stijn (2006) argues that wealth in minerals, oil or coal has no significant impact on human capital. This indeed demonstrates that the fact of having natural resources is not a guarantee for the development of human capital in the said country. The economic resources generated must still be well managed and invested in sectors such as education, vocational training, health, etc. to accelerate growth and analytical methodology is implemented using survey data. The primary data was collected using questionnaires (with a five-point Likert-type attitude scale), interview guides and the observation grid over a period of 15 years, i.e. between 2003, the year of exploitation of oil and the year 2018.

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3. METHODOLOGY

Indeed, we relied on the number of executive administrative staff and secondary school teachers, which is around 3,356 in our study areas .

Regarding the quantitative survey, the size of the workforce is 356 teachers from the densest provinces, namely Chari Baguirmi, Logone Oriental and Logone Occidental. The latter are chosen according to their level of responsibility in public establishments. Having submitted our questionnaires and interview guide to 400 individuals and considering a level of confidence of 95% as well as a margin of error of 5%, we obtained a return of 356 excluding illegible answers and omitted pages, i.e. a 89% recovery rate.

inferential statistical analysis of the information collected, is made with the software IBM SPSS 21 and QDA miner first and allowed us by means of simple linear regressions to test the hypotheses.

4. RESULTS

With regard to natural resources, we proceeded by a Principal Component Analysis (PCA), whose Kaiser -Meyer- Olkin (KMO) value is equal to 0.687. That is to say greater than 0.5 therefore acceptable. As for the Bartlett test of sphericity , its value is 1162.331 at the threshold of 0.000, at 6 degrees of freedom and indicates that the structure of the item correlation matrix is considered to be unitary. This is shown in the following Table 1.

Table 1: Result of factor analysis of natural resource items

Items	Fac1_1	Communalities
Do institutions receive a consistent budget for the exercise of their annual program?	0.906	0.821
What is your assessment of the management of the various expenses of the establishment?	0.887	0.786
Does the remuneration policy seem satisfactory to you?	0.899	0.808
Is your salary fair and regular?	0.897	0.804
Own values	*3,219*	-
% of variance explained	*80,472*	-
Cronbach 's Alpha	*0.913*	-

Source: Our surveys

This table 1 of descriptive analysis of the variable natural resources shows that the items are well correlated and strongly fulfill the required conditions of reliability and coherence with α=0.91 and an average of the variance which explains a factor of 80.472 % of items with a value of 3.219.

These results draw attention in the sense that the exploitation of natural resources strongly contributes to the strengthening of human capital, in particular to the development of educational policy and to the financing of the education system. Opinions collected from MENPC executives as well as principals, censors and supervisors give us some explanations as to the contribution of natural resources, particularly oil, to the growth of educational human capital (Jean-Bernard, 2005) . Indeed, with the advent of oil exploitation, the State has built many schools and high schools in cities and provinces. The state has also made teaching materials available to schools, although some establishments have not benefited from these donations. The number of teachers as well as the remuneration policy has been revised upwards.

The results of the statistical tests below in Table 2 show through the percentage of the "satisfactory" and "very satisfactory" modality that natural resources have made a considerable contribution to the promotion and enhancement of human capital through the education system.

Table 2: What is your assessment of the management of the various expenses of the establishment?

		Workforce	Percentage	valid percentage	Cumulative percentage
	Not at all satisfied	36	10.1	10.1	10.1
	Unsatisfied	110	30.9	30.9	41.0

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Valid	Neutral	33	9.3	9.3	50.3
	Satisfied	**138**	**38.8**	**38.8**	**89.0**
	Very satisfied	**39**	**11.0**	**11.0**	**100.0**
	Total	356	100.0	100.0	

Source: our statistical tests

This table 2 shows that of the 356 individuals we interviewed, and considering the ranking of their results on the 5-level Likert scale, it appears that the majority of our respondents, i.e. 49.8% of our respondents, answered d a satisfactory and very satisfactory way to the question of the management of the various charges of the establishments of which they are agents. This is the management of establishments with resources from the revenue from petroleum products.

On the question of " satisfaction" with respect to the remuneration policy, an official of the Ministry of National Education and Civic Promotion declares:

" *Thanks to the exploitation of oil, the State has benefited from a sufficient income and this has enabled it to increase the budget of the Ministry of National Education and Civic Promotion"; "At the level of the trade union platform, our demands have been taken into consideration. The bonuses as well* as *the salary indices have been revised upwards and this, to the extent of the demands* **.**

Table 3 below gives us more information on the "satisfaction" and "non-satisfaction" of remuneration policy in the era of oil exploitation.

Table 3: Are you satisfied with the remuneration policy?

		Workforce	Percentage	valid percentage	Cumulative percentage
Valid	Not at all satisfied	37	10.4	10.4	10.4
	Unsatisfied	69	19.4	19.4	29.8
	Neutral	72	20.2	20.2	50.0
	Satisfied	110	30.9	30.9	80.9
	Very satisfied	68	19.1	19.1	100.0
	Total	356	100.0	100.0	

Source: our statistical tests

This table 3 shows us that the natural resources have been beautiful and very useful in contributing to the improvement of the remuneration policy of teachers civil servants of the State.

However, with regard to the Dutch syndrome theory, opinions are divided. The Dutch syndrome theory has been debated by many authors, as being able to be a motivating element and as being able to also play negatively in the economic growth of a country. According to Sachs and Wamer (1995), the natural resource curse has a negative correlation with natural resources. Bulte et al, likewise, point out that the abundance of natural resources would be negatively correlated with the level of Human Development.

Indeed , we can retain by this, according to the first hypothesis HR1 : "natural resources negatively influence the education system in Chad" , that the results of the analysis correlate and show that natural resources have a negative influence on the education system. .

The figures obtained after analysis demonstrate this because the coefficient of determination (R^2) gives a value of 0.982. This is satisfactory. In other words, the abundance of natural resources has a 98.2% impact on the education system in Chad. Furthermore, the coefficient (R) is 0.793. This is clearly above the normal threshold of 0.5 with a P value of 0.000 < 0.05). Fisher's test showed a value of 9815.015 and Student 's T showed a value of 99.071 with p = 1.000 .

These results indeed confirm the theory that the abundance of natural resources can be a boon for sustainable growth (Magrin and Vliet , 2005) . Like most oil-exporting countries in Africa, Chad has thus decided to invest oil revenues in so-called priority sectors, namely education, health, agriculture, etc. one could say, moreover, that even if the other sectors seem less cited according to the theoretical studies of Magrin (2015), the social sectors, in particular human capital, remain a priority in times of

abundance of natural resources. In partial conclusion: the HR1 hypothesis is verified.

Regarding data on human resources **,** we must remember that The main question of exploratory factor analysis is whether or not to factor the data. The Bartlett sphericity test and the KMO test thus make it possibleto verify this condition. Bartlett's sphericity test is based on the null hypothesis that the variables are uncorrelated in the population. A high value of the test advocates the rejection of this null hypothesis, thus thepossibility of factoring the data (Malhotra, 1993). The Measure of Sampling Test Kaiser, Meyer, and Olkin's (KMO) adequacy compares the magnitudes of the observed correlation coefficients to the magnitude of the partial correlation coefficients. A value between 0.5 and 1 indicates that the data is factorable .

It is necessary to determine the dominant traits. For this, we performed a principal component analysiswith VARIMAX rotation on the nine items of the scale. Before proceeding to the Principal Component Analysis (PCA), we calculated the internal consistency of these nine items. This consistency gave us a Cronbach 's alpha of 0.954. This coefficient is well above 0.70 as recommended by Nunnally (1978). After that, during the first factorial analysis carried out on these variables, the rule of eigenvalues greater than unity(Kaiser's criterion) allowed us to retain two factors. The communalities are all above the acceptable thresholdof 0.5. During this analysis, the Kaiser criterion allowed us to always retain two factors with eigenvalues greater than 1 and explaining 85.703% of the total variance. The two components were retained because the results are satisfactory. The items all have a strong correlation with a single factor. In addition, the variables are well represented in the system formed by the two axes (communities greater than or equal to 0.5). The calculated Cronbach 's alphas are 0.949 for the first factor and 0.918 for the second factor. The variables forming the same item therefore have good internal consistency, since the recommended minimum value of the Cronbach 's alpha coefficient is 0.60. The results are shown in Table 4 below:

Table 4: Factor analysis of the items of the "human resources " variable

Items	Fac1_2	College2_2	Communalities
Is the HR acquisition process objective?	0.816		0.872
Is there a match between staffing needs and positions to be filled?	0.940		0.933
Is the reception and integration of new teachers well organized	0.817		0.875
Is your salary competitive and motivating?	0.940		0.933
Are the working conditions good?	0.670		0.727
Is the leadership style shared by all?		0.737	0.848
Does career management satisfy you?		0.756	0.920
Are continuing education courses open to teachers?		0.884	0.865
Is the assessment of skills fair?		0.843	0.739
Own values	*6,660*	*1,054*	-
% of variance explained	*73,995*	*11,706*	-
cumulative variance	*73,995*	*85,703*	-
Cronbach 's Alpha	*0.949*	*0.918*	-

Source: our surveys

After the Principal Component Analysis (PCA), we retained two factors taking into account the criteriaof communalities which are all higher than the acceptable threshold of 0.5. Cronbach 's alphas are also 0.949 for the first factor and 0.918 for the second factor. And the means of the variance of the two factors are respectively 73.995% and 11.706% for the explained means and 73.995% and 85.703% for the cumulative variances. The frequency analysis showed that only 6.66% of teachers positively appreciate the practices relating to the acquisition of HR. And 1,054 appreciate the practices relating to the stimulation of HR.

These different results deserve to be discussed in order to know the reasons that lead teachers and somehigh school department heads to not positively appreciate the practices relating to HR stimulation. We have retained the most sensitive dimensions of HRM, which are the acquisition, stimulation and development of HR as underlined by Fombrun , Tichy and Devanna

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(1984), Mallet (1991) and Allani-Soltan , Arcand and Bayad (2005) in their research according to which mobilizing practices can constitute an asset for the realization of the HR strategy. Indeed, it is about the organization of work, recruitment, incentive compensation, assessment of skills, living conditions at work, participatory management and career and mobility management.

For the sake of clarity, and factorization, the HR variable was split into two, the first group of which was called "recruitment", and the second group called "HR development". In addition, the two dimensions of performance, namely "teacher commitment" and their contribution to the "academic success" of the school's students, have been processed using SPSS 23 to provide unique and homogeneous data that allow us to make crosses.

The teaching staff acquisition process (recruitment) is carried out by the Ministry of Public Service according to well-defined criteria. When teachers are integrated into the Civil Service, it is the MENPC's turn
To assign them to areas where there is need. Table 5 reflects the dissatisfaction of our interviewees with the objectivity of the HR acquisition process.

Table 5: Is the HR acquisition process objective?

		Workforce	Percentage	valid percentage	Cumulative percentage
Valid	Not at all satisfied	142	**39.9**	39.9	39.9
	Unsatisfied	38	**10.7**	10.7	50.6
	Neutral	1	,3	,3	50.8
	Satisfied	101	**28.4**	28.4	79.2
	Very satisfied	74	**20.8**	20.8	100.0
	Total	356	100.0	100.0	

Source: our statistical tests

The majority of our interviewees are "not satisfied" and "not at all satisfied" with the objectivity of the HR acquisition process, i.e. a cumulative percentage of 50.6 % (i.e. 39.9%+10.7%) . Against 49.2 % (28.4%+20.8%) satisfied and very satisfied.

In the HR acquisition process, there is also reception and integration. Two main steps in the process of installing an agent in his position. They are, however, according to estimates, omitted or even ignored. We believe this could be a key element in the motivation and commitment of newly recruited teachers. Table 6 presents the "satisfaction" and "non-satisfaction" rates according to a Likert scale.

Table 6: Are the reception and integration of new teachers well organised?

		Workforce	Percentage	valid percentage	Cumulative percentage
Valid	Not at all satisfied	142	39.9	39.9	39.9
	Unsatisfied	39	11.0	11.0	50.8
	neutral	0	0	0	0
	Satisfied	102	28.7	28.7	79.5
	Very satisfied	73	20.5	20.5	100.0
	Total	356	100.0	100.0	

Source: our statistical tests

According to these statistics, the majority of our interviewees show their "non-satisfaction" at a percentage of 50.9% (39.9%+11.0%) against a "satisfaction" of 49.2% (28.7 %+20.5%).

Even if this stage of reception and official installation of new recruits requires a budget that the establishment must set at the start of the school year, it should be noted that this is somehow due to the lack of professionalism of the censors in charge of HR management. Because most of them have not received appropriate training in HRM. In other words, they do personnel management. That is to say, they only take care of the purely administrative aspect. The words of a censor bear witness to this:

"When *we find that there is a need for a teacher in any discipline, we express this in a report that we send to the delegation, and it takes care of assigning it to us. Furthermore, we do not insist on criteria linked to age, seniority, gender or rank".*

"We would have liked the opinion of those in charge at grassroots level to be taken into consideration, but alas! We accept

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everyone sent to us," says a headmaster (P2) .

In the opinion of this other censor (C2):

" *If we respected the texts and procedures, this could help to avoid many difficulties that the Chadian education system is currently encountering* "; Regarding the recruitment process, he says: " *Itcan sometimes take a long time, because the administration is hierarchical, and the decisions do not rest in the hands of one person* ".

For good personnel management, we know that you need a precise workforce, in relation to the availableworkstations. Table 7 provides information on the adequacy of the number of teachers.

Table 7: Is the number of teachers sufficient?

		Workforce	Percentage	valid percentage	Cumulative percentage
Valid	Not at all satisfied	37	10.4	10.4	10.4
	Unsatisfied	69	19.4	19.4	29.8
	Neutral	38	10.7	10.7	40.4
	Satisfied	143	40.2	40.2	80.6
	Very satisfied	69	19.4	19.4	100.0
	Total	356	100.0	100.0	

Source: our statistical tests

Table 7 clearly shows, at 40.2% "the satisfaction" and at 19.4% "the very satisfaction" of the interviewees with regard to the number of teachers in the schools against 19.4% ' dissatisfaction' and 10.4 % 'not at all satisfied'. In other words, the teachers estimate that there are enough of them to normally hold classesin the target high schools during a school year. However, one could also wonder if the sufficient number of teachers rhymes with the required qualification. Table 8 determines the adequacy between staffing needs andpositions to be filled.

Table 8: Is there a match between staffing needs and positions to be filled?

		Workforce	Percentage	valid percentage	Cumulative percentage
Valid	Not at all satisfied	36	10.1	10.1	10.1
	Unsatisfied	110	30.9	30.9	41.0
	Neutral	33	9.3	9.3	50.3
	Satisfied	138	38.8	38.8	89.0
	Very satisfied	39	11.0	11.0	100.0
	Total	356	100.0	100.0	

Source: our statistical tests

In table 8 we can see that there is a match between staffing needs and the positions to be filled. Most ofour interviewees, ie 49.8 % (38.8% + 11%) answered in the affirmative on the question of the adequacy between staffing needs and the positions to be filled.

However, there are always alternatives, which the administration in place finds to remedy certain situations of lack of specialized teachers, because administrative slowness cannot go hand in hand with the commitment of teachers; academic success (of students in national exams); even the performance of the education system as a whole. This is why, says a headmaster (P3): " *it sometimes happens that the establishment recruits part-time teachers, paid from the establishment's budget and this, with the contributionof small collections made by the parents of students through their associations* . For this other principal, (P1): *"In reality, when this absence is noted, for example, in exam classes, and the students talk aboutit to their parents, the latter themselves take the initiative to contribute financially. This is a good thingfor the success of our students* ".

In addition to these cases, there is also the incompetence of some teachers that the establishment faces.These are therefore the consequences of nepotism and clientelism as underlined a little higher in the literature.Indeed, obedience to the recruitment criterion, i.e. " *the right man in the right place,* is set aside for " *the rightman with the amount 'must* ' (C4). This means that the censors cannot welcome them as a lecturer, but rather they are assigned to the secretariat. Non-compliance with

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(recruitment) criteria is therefore a real obstacle to better HR acquisition. To do this, even if the number of teachers recruited is reached, the criteria relating to their skills are not met at all for lack of a real reference system .

Regarding the salary, the interviewees did not respond favorably for the most part. Indeed, the bonusesgranted by the State to the inter-union of workers, after periods of negotiations, were canceled during the fall in the price of a barrel of oil. This was the cause of mass discontent accompanied by a long period of teacher strikes in September, October and November 2017. Table 9 provides information on the competitive and motivating nature of the salary that teachers receive.

Table 9: Is your salary competitive and motivating?

		Workforce	Percentage	Valid percentage	Cumulative percentage
Valid	Not at all satisfied	138	38.8	38.8	89.0
	Unsatisfied	39	11.0	11.0	100.0
	Neutral	33	9.3	9.3	50.3
	Satisfied	36	10.1	10.1	10.1
	Very satisfied	110	30.9	30.9	41.0
	Total	356	100.0	100.0	

Source: our statistical tests

Indeed, Table 9 clearly presents the percentages of teachers satisfied with their salaries and those not satisfied with their salaries. The figures actually show that teachers are not at all satisfied (38.8%) and not satisfied (11 %) with their salaries in terms of its competitiveness and motivating nature. This situation is actually explained by the theory of the curse of natural resources which causes political and social instability and thus retards growth (Ross, 2004; Manzano and Rigobon , 2006; Alexseev and Conrad, 2009; Ngangoué 2016) . This dissatisfaction with the salary will also degenerate on the leadership style.

The scores obtained in terms of leadership style also find their explanations in this argument. In fact, thedecision taken by the government during the period of the fall in the price was unilateral, and this lasted threeyears according to the opinion of a MENPC executive: "In order to resolve the oil crisis *affecting the oil- producing countries, the authorities got up one morning and suppressed all the achievements of civil servantswithout consulting them* " (CM2). We find in this a non-consultative, even authoritarian style of leadership. Table 10 tells us more.

Table 10: Is the style of leadership shared by all?

		Workforce	Percentage	valid percentage	Cumulative percentage
Valid	Not at all satisfied	107	30.1	30.1	70.8
	Unsatisfied	104	29.2	29.2	31.2
	Neutral	34	9.6	9.6	40.7
	Satisfied	70	19.7	19.7	19.7
	Very satisfied	41	11.5	11.5	100.0
	Total	356	100.0	100.0	

Source: our statistical tests

Table 10 presents a breakdown of our interviewees according to their "satisfaction" and their dissatisfaction with the government's style of leadership in the social management of the oil crisis and its negative impact on the tripartite social dialogue. It could also be a source of tension. From then on, it is the performance of the education system that is at stake. Table 11 below therefore highlights the factor analysis ofthe items of the human capital variable.

Table 11: Result of factor analysis of human capital items

Items	Fac1_3	Communalities
Does the exploitation of NR make it possible to establish a good policy in the field of education?	0.886	0.786

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Is the curriculum respected?	0.823	0.677
the State have partners in education in Chad?	0.886	0.785
Is the number of teachers sufficient?	0.934	0.872
Is the leadership style shared by all?	0.942	0.887
How do you assess the knowledge assessment system?	0.828	0.685
Own values	*4,691*	-
% of variance explained	*78,176*	-
Cronbach 's Alpha	*0.941*	-

Source: our surveys

By analyzing the data on human capital, it was found that the Cronbach 's alpha coefficient of the human capital variable is 0.941, which is well above the average and testifies that the items are taken into account by the single component. main insofar as all the commonalities are greater than 0.5.

Human capital is indeed represented by the items and the eigenvalues are 4.691 with a percentage of the variance explained at 78.176%. We can conclude by saying that the human capital variable is strongly correlated with the natural resources variable. The hypothesis that natural resources influence human capital is verified. In reality, as Christophe (2012) points out, *"countries abundant in natural resources can be both winners and losers, their situations depend on the quality of the institutions in place "*. In the case of this study,the human capital indicators are green. The items being "budget allocated to education" and "wage bill" in general are good. This is also what officials from the Ministry of Education testify to when they are questionedabout the impact of natural resources on human capital. " *Yes, in recent years thanks to the exploitation of oil,we have received endowments of teaching materials and important textbooks. The operating budget of the Ministry as well as that of the delegations are slightly revised upwards "*. And on the other hand, " *This, we hope, will greatly contribute to the improvement of educational human capital in Chad* ". Table 11 below shows a distribution of the opinions of the interviewees in relation to the consistency of the operating budgets.

Table 11: Do institutions receive a consistent budget for the exercise of their annual program

		Workforce	Percentage	valid percentage	Cumulative percentage
Valid	Not at all satisfied	**143**	**40.2**	**40.2**	**40.2**
	Unsatisfied	39	11.0	11.0	51.1
	Neutral	0	0	0	0
	Satisfied	**101**	**28.4**	**28.4**	**79.5**
	Very satisfied	73	20.5	20.5	100.0
	Total	356	100.0	100.0	

Source: our statistical tests

Of the total number of our interviewees, the majority say they are not satisfied with the consistency ofthe operating budget (40.2%) against 28.4 %. In connection with the theoretical studies made, the budgets allocated to the Ministries of Education as well as to that of vocational training and that of higher education during the last five (5) years confirm the current results.

The State also has many partners (individuals and NGOs) who support it in the field of education. This solves, somewhat, the problem of overstaffing in the classrooms. Although supported by its many partners, the performance of the Chadian education system remains to be determined in Table 12 below.

Table 12: **Result of the factor analysis on the education system performance items**

Items	Fac1_4	College 2_4	Communalities
Are you satisfied with the ranking of your establishment on the national scale?	0.920		0.802
Do you agree with the national exam admission rate?	0.923		0.712
How do you assess the rate of passage to the next class?	0.921		0.792
What is the class attendance rate?	0.923		0.593

Are you quick to rescue others?		0.870	0.898
Are you ready to make extra efforts without expecting financial compensation?		0.820	0.904
Do you put your personal textbooks at the service of the students of your establishment?		0.868	0.901
Are you very involved in the work?		0.740	0.904
Own values	4,806	1,701	-
% of variance explained	60.075	21,257	-
cumulative variance	60.075	81,333	-
Cronbach 's Alpha	0.872	0.957	-

Source: our surveys

According to Allouche et al. (2004), performance is a function of the results obtained after the use of men and women with regard to the multitude of criteria to measure "satisfaction", commitment, modes of operation and is specific to to each organization. As far as this study is concerned, the notion of performance refers to the performance of the education system. Two factors are retained in particular the " **commitment towork** ", inspired by the work of Allen (1990), Arcand et al. (2004), Manon (2009). Then " **school success** ", based on the work of Huselid and Barnes (2003) and Manon (2009).

In view of the descriptive analysis, we note that the results provide objective information on the partialconclusions. For the "work commitment" factor, the calculated Cronbach 's alpha is 0.872 and the mean of thevariances is 60.07%.

The first group concerning teachers' commitment to work is well correlated. When you see the differentitems. However, the item relating to the rate of promotion to the next class is weakly correlated. This is becausethe commitment of the teacher is also a function of his remuneration. As underlined in the theory of needs byMaslow (1954), if the needs of the teachers are satisfied, it is obvious that their commitment also is at the rightlevel to finally have a good result. According to Mûller and Djuatio (2011), affective commitment is a true predictor of work efficiency. The results also seem to find explanations in the interviews which shed light on the reasons for the poor implementation of these different practices. The qualitative study reveals some elements of understanding of this reality.

During our interviews with some high school leaders, some tell us this: " *We are committed to doing thework and the teachers are the same. Some of them even go beyond the closing hours indicated in order to gettheir message across"* (C4) or *"The proof: we are always present and give our best for the success of the students* " (C4) . Table 13 below traces the involvement of our parent population in the work.

Table 13: Are you very involved in the work?

		Workforce	Percentage	Valid percentage	Cumulative percentage
Valid	not agree at all	26	7.3	7.3	7.3
	Disagree	69	19.4	19.4	26.7
	Neutral	29	8.1	8.1	34.8
	All right	161	45.2	45.2	80.1
	Very agree	71	19.9	19.9	100.0
	Total	356	100.0	100.0	

Source: our statistical tests

We noted from table 13 that the percentages of our interviewees with regard to their involvement in thework is quite real. We noted that approximately 65.1% of our interviewees agree with their involvement in thework, against 26.7% who are not involved in the work. In other words, the level of commitment of teaching staff seems high despite the lack of material and financial means (C7).

"For some time, we no longer receive the necessary endowments, but some teachers pay out of theirpockets for pens, sheets and the like for the work."

Indeed, the plethoric number of students in the room is an element that would have a strong influence on the commitment or even the quality of the transmission, but the interviews did not reveal this. Academic success is one of the

performance indicators that also comes up repeatedly .

According to the analyses, the "school success" factor has a Cronbach 's alpha of 0.957. Only 21.257% of teachers are in favor of the academic success of students. The growing cumulative percentage of the numbers of interviewees reveals that 88.75% of them do not share the idea of "school success". As Manon (2009), de Huselid and Barnes (2003) have pointed out in their work on the performance of the education system, "school success" is a function of the joint efforts of teachers and students, but also of the administrative system. For these authors, "school success" is the key element in measuring the performance of the education system. It can be measured precisely through the rate of admission to national examinations. Table 14 shows us the agreement of our parent population to the admission rates of students in the high schools targeted in general for their national exams.

Table 2: Do you agree with the national exam admission rate?

		Workforce	Percentage	Valid percentage	Cumulative percentage
Valid	not agree at all	36	10.1	10.1	10.1
	Disagree	110	30.9	30.9	41.0
	Neutral	33	9.3	9.3	50.3
	All right	138	38.8	38.8	89.0
	Very agree	39	11.0	11.0	100.0
	Total	356	100.0	100.0	

Source: our statistical tests

It emerges from this table 14 that 49.8% of our interviewees agree with admissions to national examinations. So, there is a real investment of teachers in the success of students, which has resulted in a significant agreement of our parent population in the success of national exams.

So what about the rate of passage to the next class? Table 15 also shows us a distribution of the opinions of our interviewees in relation to the rate of passage to the next class.

Table 15: How do you assess the rate of promotion to the next class?

		Workforce	Percentage	Valid percentage	Cumulative percentage
Valid	not agree at all	142	39.9	39.9	39.9
	Disagree	39	11.0	11.0	50.8
	Neutral	0	0	0	0
	All right	102	28.7	28.7	79.5
	Very agree	73	20.5	20.5	100.0
	Total	356	100.0	100.0	

Source: our statistical tests

Table 15 indeed shows that the rate of disagreement of our parent population with the assessment of the rate of promotion to the next class is 50.9%. While the rate of agreement of our population to passages in higher class is 49.1%. This percentage of disagreement shows that the passage to the next class also depends on the contribution of the pupils in the class work.

By listening to the interviewees, we can therefore realize that the pupils have to make more efforts to tip the scales. Because indiscipline is the first element that would be the cause of this low success rate, then comes laziness. Listening to the principal of a high school in N'Djamena:

" *Students now are very unruly and absentee. When they come to class, it is with bladed weapons and sometimes with firearms to threaten us and the teachers. I believe that at this level, whatever the desire for success of the students that the teacher may have, the result will always be zero* ".

In view of the results of the analyzes made, one could actually say that HRM negatively influences the performance of schools because it is carried out by agents who do not have in-depth training in the said field.

Among the practices noted, recruitment procedures, remuneration, remuneration policy, and leadership style are those that would have the most negative influence on the performance of teachers and therefore of the education system.

2.2. Interpretation of the results of the influence of HR on the performance of the education system

Our second hypothesis is as follows *:* HRM influences the performance of the public education system in Chad .

Indeed, the relationship between HRM and system performance has been the subject of several theoretical studies. These are the theories of mobilizing practices, in particular the theory of the universalist approach and the theory of social exchange. In other words, the employer must take care of the well-being of its employees given the expectations it has of them.

This study is both quantitative and qualitative. The first, quantitative, was conducted with public secondary school teachers in Chad. The second, qualitative, is made with the heads of secondary schools and some MENPC executives. This provided explanations for the results of the exploratory descriptive analysis. To verify the assumptions made. The principal component analysis method was used to perform simple linear regressions, and to test the influence of each of the independent variables on performance.

In order to find out if there is a significant relationship between HRM and the performance of the education system, the second hypothesis is formulated as follows: HRM negatively influences the performance of the Chadian education system.

The different results obtained in the tables below respectively in relation to each of the items cited give the following results:

The results of the analysis showed that there is a negative correlation between HRM and the performance of the education system with an R coefficient of 0.916. This score is satisfactory and attests to the significance of the negative impact of HRM on the performance of the Chadian education system . The HRM regression on performance showed an R^2 of 0.840 and contributes 84 % to explaining the variability of the regression model. The Ficher test displays an equally positive variation of F (924.477) and very significant with p-value

< 0.000 and seems to confirm this prediction. The Durbin -Watson test and the analysis of the regression curve of the residuals made it possible to validate this regression. Based on these findings, the HR2 hypothesis was verified.

In general, we can retain that the relationships highlighted between natural resources and human capital, in particular the education system and HRM and performance are really meaningful. The influence of natural resources on human capital is more significant (R^2 =0.982). While the impact of human resource management on the performance of the education system shows an R^2 of 0.840 , which is also significant .

The results obtained are in line with those obtained by other researchers regarding the positive effects that natural resources would have on human capital (education system). Gylfaçon (2001), in his works, said that education and training serve to create human capital . And the results obtained are similar to those of the World Bank obtained after empirical studies in African countries such as Ghana, Niger and Uganda, where 86% of children are educated thanks to oil revenues. Table 16 highlights the level of contribution of the exploitation of natural resources to the implementation of a good national education policy.

Table 16: Does the exploitation of NRs make it possible to establish a good education policy?

		Workforce	Percentage	Valid percentage	Cumulative percentage
Valid	Not at all satisfied	142	39.9	39.9	39.9
	Unsatisfied	39	11.0	11.0	50.8
	Neutral	1	,3	,3	51.1
	Satisfied	101	28.4	28.4	79.5
	Very satisfied	73	20.5	20.5	100.0
	Total	356	100.0	100.0	

Source: our statistical tests

We observe in this table 16, that the dissatisfaction of our interviewees is estimated at 50.9% according to the addition made of the line "not at all satisfied" and the line "not satisfied". Against a rate of "satisfied" and "very satisfied" which is 48.9%. This high level of dissatisfaction can be explained by the theoretical literature around the phenomenon of the natural resource curse. These results are in line with those of Leameret *al* . (1999) quoted by Gadom , Fondo and Totouom (2018) who considers natural resources as a curse in view of the arguments drawn from economic and political science ; and the political economy because sometimes natural resources alone constitute the main sources of income and some rulers use them to stay in power, thus obscuring the development of human capital.

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The findings regarding human resources and the performance of the education system corroborate this.The theories around HRM and organizational performance, in particular the theory of resources, have made itpossible to show the importance of HRM in the performance of the education sector.

However, the results obtained show that HRM conducted individually in high schools and in the education system in general is not well conducted. The numbers indicate a negative correlation coefficient of $R = 0.916$. This is satisfactory and attests to the significance of the negative impact of HRM on the performanceof the education system . The R^2 coefficient is 0.840 and contributes 84 % to the explanation of the variabilityof the regression model. The level of teachers' "satisfaction" and dissatisfaction with career management is shown in Table 17 below.

Table 17: Are you satisfied with career management?

		Workforce	Percentage	Valid percentage	Cumulative percentage
Valid	Not at all satisfied	107	30.1	30.1	70.8
	Unsatisfied	104	29.2	29.2	40.7
	Neutral	34	9.6	9.6	31.2
	Satisfied	70	19.7	19.7	19.7
	Very satisfied	41	11.5	11.5	100.0
	Total	356	100.0	100.0	

Source: our statistical tests

This table 17 shows that 30.1% of teachers are not at all satisfied, against 19.7% satisfied. This does notbode well for healthy growth and performance of the education system. Because, as Duncan and Hoffman (1981) point out; Tsang (1987) and Rumberger (1987), all organizations that invest in capacity building through the career management of their staff, gain in return by improving their performance.

We can therefore, in view of the results obtained and attesting to the negativity of HRM on the performance of the Chadian education system, make proposals to the various decision-making bodies for futureimprovement.

5. CONCLUSIONS AND RECOMMENDATIONS

At the end of this research, we can conclude that the exploitation of natural resources strongly contributesto the viable growth of States. However, this is not the case for all, particularly for Chad. Because although the income from the exploitation of natural resources contributes strongly to the growth of human capital, particularly in the education sector, the same is not true for human resources in the education sector. Considering that human resources are the pillars of the growth of the education sector, it is therefore necessaryto invest heavily in the management of human resources in order to benefit abundantly from the production ofnatural resources and consequently from a stock of sufficient human capital. To do this, we propose the following in order to achieve optimal performance both in the management of natural resource revenues and in the management of human resources in the education sector.

With regard to the exploitation of natural resources , this involves the creation of a special "human capital" fund. Indeed, this fund will be made up of part of the income from mining resources and will be used to financeinvestments in human capital, particularly in the field of education. It is also necessary to involve companies and industries operating in the natural resources sector, to participate in the development of human capital through their social responsibility. Similarly, governments must be encouraged to ensure the framework conditions by increasing the stock of human capital and finally seek the assistance of international organizations and institutions to help local governments in the management of natural income.

We consider that it is also useful with regard to the management of human resources to create a joint commission made up of experts in the field of educational sciences, HRM and ethics within the one-stop shopof the Civil service in charge of recruitment. It is necessary to institute global allowances for the performanceof teachers and to establish regular training sessions and seminars by pool in order to give some basics of HRMto the heads of establishments who are in the field. Without forgetting the creation of a sector at the normal school for the training of pedagogues specialized in HRM in order to meet the relative needs in human resources. And finally, condition appointments to technical positions by a competition and by the number of years of experience.

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