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Opportunities and Challenges of Investment Activities: The Case of Selected Areas in Jimma Zone

By Abdissa Ayana Biftu

Abstract- The purpose of this paper is to explicitly identify the major opportunities and challenges of investment activities in selected areas of Jimma zone (Seka Waterfall, Asendabo Hydro-Electric power, Yebu Beekeeping and Jimma Museum) in order to make the line open for further advanced research. Furthermore, indicating some of the investment opportunities for investors, and providing possible solutions to the challenges observed were investigated. Information has been gathered from both primary and secondary sources of data. The pre-prepared written questionnaires and structured observation were primary one whereas document analysis belonged to secondary sources of data. In addition to this, structured interview was also employed for triangulation of research findings reality. Simple random sampling method has been used for collection of data processing, and analyzing was performed accordingly. Jimma Zone has investment opportunities with a potential to accommodate various types of agro-industries that could make agricultural resources produced in the areas of its row material's production.

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Chapter One

I. Introduction

a) Background of the study

In countries where growth is high, total domestic and foreign investment often exceeds 25% of gross domestic product (GDP). But, in sub-Saharan Africa, gross fixed capital formation has hovered at around 18% of GDP for the last two decades. Since the financial crisis in 1997, investment rates in developing countries in Asia (excluding China and India) have remained at around 21% (World Bank, 2005b). One factor contributing to low growth rates in developing countries, especially the poorest ones, is insufficient, inappropriate and poorly maintained physical infrastructure (Migliorisi,s. and M. Galmarini, 2004b:28).

Improving the investment climate will encourage more infrastructure investors to invest. This in turn will make infrastructure services more widely available and encourage other types of investment. Recent research supports the view that using ODA to promote infrastructure development merits greater attention; studies have found a large, positive, causal relationship over a four-year period between "immediate-impact aid" – *i.e.* budget and balance-of-payments support, infrastructure and aid for productive sectors – and economic growth (Clemens, Radelet & Bhavnani 2004). A diversified and competitive financial sector is also important for promoting growth in developing countries as it helps maintain economic stability, makes financial transactions secure, mobilises external and domestic savings and facilitates the efficient allocation of capital to productive investments. The World Bank's 2005 *World Development Report* (World Bank, 2004) similarly highlighted that it is not just the quantity of investment that matters for promoting growth, due to the decreasing marginal impact of additional investment in physical assets. What ultimately counts are the productivity gains that result from product and process innovations brought about through investments, as well as the extent to which jobs and capital flow from declining industries to expanding and emerging economic activities (Boza,Baatriz and Luke Haggarty,2006:74).

This will make it possible to invest larger sums in the future. The investment climate consequently needs to provide opportunities and incentives for firms and entrepreneurs to develop, adapt and adopt better ways of doing business. Investment is, therefore, one of the key factors for the growth of the economy of one country (OECD,2004 b:42). It is doubtless that dealing with the problems that hinder investment is necessary and also important in the investment sector, before making decisions, one investor should consider some required points such as;

- Required rate of return
- Rate of expected inflation

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- The risks involved, that can have an effect on the investors decision
- Services provided for customers

However, in case of Jimma zone, it is impassible to say that the factors hindering investment activities are confined to the above listed required points only. There are other factors that cut down the growth of investment sector in this zone.

Broadly speaking, as market is one basic factor for the determination of investment activity (i.e. an efficient market is one in which investment has higher expected return and also has lesser level of risk)[1], it is also necessary to deal with the market characteristics and market conditions, when ever we deal with investment. but in many cases, even though the market is profitable, fearing the risk involved makes business men far apart from the sector.

Furthermore, investment or investing is a term with several closely related meanings in business management, finance and economics, related to saving or deferring consumption. An asset is usually purchased or equivalently a deposit is made in a bank, in hopes of getting a future return or interest from it. (Bodei Kane Marcus (1999).

In other words, investment is the use of money for the purpose of making more money, to gain income or increase capital or both (www vss 2000. com/ glossary/asp).

From the national perspective, an increase in the stock of capital goods or any other expenditure designed to increase future output; from the perspective of the individual, any expenditure designed to increase an individual's future wealth, such as the purchase of a share in a company (www. wwnorton. com/ stiglit zwalsh/economics/glossary/htm)

Investing is the act of laying out money or capital in an enterprise with the expectation of profit (wordnet. princeton.edu/peri/webwn).

Investing is also using one's personal funds or the funds of a business to acquire productive resources (en.wikipedia org/wiki/investment).

Investment is money that is invested with an expectation of profit (Bodie Kane Marcus (1999).

In any case investment activities in Jimma Zone are found to be low, and my research study will try to find out some of the basic problems for the low investment situation.

b) Statement of the problems

Investment has direct relationship with the economy of one country. That means the level of the investment of one country can display the level of an economy of the country.

Despite the natural resources available, there are some factors that lead to low investment activities in different areas of our country. Among them the following major ones. Rate of expected inflation or market condition, required rate of return (market) and the risks involved.

Jimma Zone has a great potential for investment activity in most sectors. However, it has not been benefited from this opportunity. The rural residents live under poverty line and have been undergoing many development problems as unemployment, poor infrastructure facilities, and absence of manufacturing industries. The urban drivellers are living with low standard of living, low-income unemployment and other social service problems.

These are the factors necessitate to go for the study under his title and deal with the factors that lead to low investment activities in Jimma zone.

Generally, this study attempts to answer the following questions:

- What are the problems that lead to low investment activities in this zone?
- What suggestions can be made to overcome these problems, which is its goal?

c) Objectives of the study

i. *General Objectives*

- Identifying factors that contribute to low investment activities in Jimma zone.

ii. *Specific Objectives*

- To determine the general attitude of the population and the government to wards investment activities in Jimma Zone.
- To investigate the nature and level of investment activity in the zone and surroundings.
- To look whether there is paper tiger (i.e. gap between policy formulation and implementation).
- To determine the impact of low investment on the overall economic development in the zone.
- To identify the different potentials and opportunities for investment that can be utilized if suitable conditions are arranged.
- To initiate further research activity on the topic, simply by offering an available and relevant data.

d) Significance of the study

Undoubtedly, expansion in all types of investment activities is detrimental for a country's growth. The contribution of investment on GDP occupies a sound share in many countries including Ethiopia. Despite this, a number of factors have an adverse effect on it.

In order to attract investors, both from locally and abroad, there are certain key elements that are considered highly desirable by potential investors. These include the openness of the economy to international trade and finance, fiscal discipline by the government, political stability, governance and sound economic management, strong banking and financial markets etc.

[1] From bodie kane arcus

When the presence of all the necessary conditions for investment is low, investment will be badly undermined, since investment promotes economic growth, raises standard of living and contributes to a nation's wealth, the relevance of the study be it implicitly or explicitly is to identify the major factors inhibiting investment and to make the line open for further extended (advanced) research, besides showing some of the investment opportunities for investors, and providing possible solutions to the problems to be observed.

e) Scope of the study

Jimma zone was selected as the study area among the zones in Oromia region which has with available human and material resource background but owing to different constraints related to lack of awareness, limited socio-economic infrastructure, lack of managerial and technical skills and mal-administration. For the reason that the investment activities of the zone was dwarfed despite the fact that natural endowments. The researcher was initiated to choose the area like Seka Water Fall,Asendabo Hydro Electric Power,Yebbu Beekeeping and Jimma Museum, too. The study will therefore focus on assessing factors that limit the level of investment activity and impact on this area's development in the zone.

f) Limitation of the study

- Unwillingness of some investors or their representatives to fill the prepared questionnaires.
- Insufficiency of time and money to effectively collect the necessary data
- Unpunctuality of some workers of the documentation and other workers of the library, which hinders the obtaining of some data and references timely.

g) Background of the study area

Jimma Zone is a zone bounded by other zones of some Regional State such as; Welkitie, Bonga and Ilu Aba Bor, with the capital of Jimma town.

Even though, the zones'investment activity is not as much satisfactory, it is one of the zones of Oromia which have plenty resources suitable for investment.

For instance, among the investment activities of the zone, let us see small holders Hydro Electric Power projects developed by the regional government from 1993-2004. Within this time, total investments were Br 9,313,171. Government was serving as a source of fund. These Hydro Electric Power projects are developed from Gibe and Gilgal Gibe River.

When the researcher compared to other zones of the region, it was moderately invested in this specific project, following some zones such as; East Shewa and West Harerghe. But when it was investigated at the country level, it would be at its infancy.

h) Acronyms

DAC Development Assistance Committee
FDI Foreign Direct Investment
GDP Gross Domestic Product
IFC International Finance Corporation (World Bank Group)
MDG Millennium Development Goals
ODA Official Development Assistance
PPP Public-Private Partnership
SME Small and Medium-sized Enterprise

Chapter Two

II. Literature Review

a) An Overview

For many years, investment has been viewed and defined in different ways by different authors, Even though it is defined and viewed by different authors, it has the same concept. Different countries have also different investment policies, rules and regulations. For example one country many give more freedom for private investors within the nations. The other country many close its door for foreign investors more than the other countries', etc. Accordingly, authors suggest different techniques for success in investment sector for a country or investors.

As investment is defined Helffert (1997), it is "a fixed and initial operating resource used for the production of goods, the provision of services and the development of science and technology capability". Helfert also advises investors that they should invest internally (within their own activities) before considering external investment (investing outside their activities) accordingly an investor engaged in an oil drilling investment should consider weather he/she expand this activity before starting (selecting) other activities say manufacturing activity. Definition of investment by Gitman is that " sizable outlays of funds that commit a firm to some course of action, the firm lies on specific procedures to analyze and select those investments properly".

Shaum,S(1998) has set the process for evaluating and selecting long term investment and classifies investment decisions as the following:

1. Selection decisions concerning proposed projects that involves investment in long term assets such as property plant and equipment, or resource commitments in the form of new product development, market research, refunding or long term debt, etc and.
2. Replacement decisions such as replacement of existing facilities with new facilities.

Before starting an investment activity, one investor must know in what area he/she is going to invest, the available funds he/she has for investment, the

economic and political situations of the country, availability of raw materials for running its activity, and finally, he/she must put a standard of evaluating the profitability of the investment.

According to Helford, an investor engaged in the investment activity must be seen wither the investment is contributing some advantage for the nearest society and the nation in general. Thus, the following investment objectives may be fulfilled by an investor:-

- To increase in the variety, quality and value of the supplied goods and services of the country
- To create employment opportunities
- Encouraging the expansion involve in variety and quality of the export of the nation
- Encouraging utilization of domestic raw materials, production machinery, equipments and other goods.
- To develop and utilize the natural resources of the country and others.

For judging the attractiveness of one investment an investor should first consider; the amount to be expended on the investment, the potential benefit of the investment, the time period and any final recovery of capital.

Generally, for evaluating investment projects, shaums (1998) has set 5 main methods of evaluation.

a) Pay back period

Measures the length of time required to recover the amount of initial investment. According to this method, the investor chooses an investor chooses an investment activity with the shorter pay back period.

b) Accounting Rate of Return (ARR)

This measures the profitability from the conventional standpoint by relating this required investment (average investment) to the future annual net income. According to this rule, the investor has to choose the project with the higher rate of return.

c) Net Present Value (NPV) method

NPV is the excess of the present value of cash inflows generated from the investment over the amount of the initial investment and the rule says, accept an investment activity with the positive not present value.

d) Internal Rate of Return (IRR)

IRR is defined as the rate that equals interest with the present value of future cash indows. In this method, the investment decision is accepted if IRR exceeds the cost of the total investment.

e) Profitability index (PI) Method

It is the ratio of the total present value of future cash inflows to the initial investment; i.e PV/I. The rule says accept the investment which its profitability index is greater than other factors to be considered in investment activities include; risk associated with the investment, inflation rate, tax policy of the government etc.

Investment is defined by Helfert (1997) as a fixed and initial operating resource used for the production of goods, the provision of services and the development of science and technology capability. When we relate this definition with the statement of the problem; poor infrastructure facilities, unemployment, absence of manufacturing industries, low standard of living, low income and other social service problems are the results of absence of using these operating resources for the production of manufacturing industries and the provision of these unfulfilled services.

Robert C. Radcliffe's investment description (1996) denotes that investment is the sacrifice of certain current wealth for possibly uncertain future. Since most investments have uncertain future values. Investors in such assets will require positive expected future returns.

Bodie kane Marcus (1999):- Real assests versus Financial Assets the material wealth of a society is determined ultimately by the productive capacity of its economy the goods and services that can be provided to its members. this productive capacity is a function of the real assets of the economy. The land, buildings, knowledge, and machines that are used to 14 produce goods and the workers whose skills are necessary to use those resources. Together, physical and human assets generate the entire output.

Financial assets are such as stocks or bands. Shares of stock are no more than sheets of paper; they do not directly contribute to the productive capacity of the economy. Because they allow for separation of the ownership and management of the firm and facilitate the transfer of funds to enterprises with attractive investment opportunities. Financial assets certainly contribute to the wealth of the individuals or firms holding them. This is because financial assets are claims to the income generated by real assets or claims of income from the government.

International investment refers to investing in securities beyond the borders of one's own country. Global investment refers to investing in securities throughout the world (Robert C. Radeliffe 1996).According to investment Management in the 1990s, the type of securities traded as well as the way in which they are traded are constantly evolving as technology, society's needs, and political conditions change. The pace of change seems to be accelerating, driven both by increasing numbers of investors and competition. The major areas of change are in globalization, securitization, derivatives and technology.

b) Statement of Investment Policy

[2]An organization uses statement of investment that will be best understood by the investor. It is common to have three sections:

[2] From Robert C.Radcliffe (1996)

(1) Investment objective (2) investment constraints and (3) investment policies.

The investment objective is usually a return objective related to the asset allocation that has been chosen. Investment constraints can include factors such as liquidity constraints, tax requirements, and any other relevant constraints. Investment policies represent the strategies that are to be used.

c) Investment Types

[3]Major types of securities traded in world markets are categorized in to various classes based on their type and amount of investment risk. Direct Security claims are assigned to one of three asset classes: (1) debt securities with a maturity of less than one year referred to as money market instruments, (2) debt securities with a maturity of more than three years referred to as capital market fixed income securities, and (3) equity securities, indirect claims are classified as either derivatives or commingled portfolios.

d) The process of investment Management

[4]The process used to manage a security portfolio is conceptually the same as that used in any managerial decision:

- Plan
- Implement the plan
- Monitor the result

i. *Planning*

At this stage, investor and capital market conditions are blended in order to determine a set of investment and speculative policies as well as a long-run strategic asset allocation.

ii. *Implementation*

This consists of any active timing between asset classes and the selection of individual mangers or securities to be held in each asset class.

iii. *Monitoring*

There are three aspects to this monitoring. First, the actual portfolio held should be examined to ascertain it is in compliance with the statement of investment policy and to determine wither any passive rebalancing of the asset mix is required. Second, investment performance should be reviewed. This should consist of a review of returns on (1) the aggregate portfolio, (2) each asset class and investment manager, and (3) the returns from any speculative strategies employed. Finally, adjustments to the statement of investment policy (SIP) and investment managers should be made if necessary.

e) Management Of Equity Securities

- [5]Passive Equity Management
- Active Equity Management
  - Active Management by institutional investors

Active institutional managers use a wide variety of approaches. The following listing illustrates the general approaches used:

- Top-Down Managers
- Bottom-Up Managers
- Quantitative Managers
- Concept Managers
- Value Managers
- Growth Managers
- Large cap Versus Small cap Managers

Chapter Three

III. Methodology

a) Souces Of Data And Method Of Collection

Data and information have been gathered from two main sources:

Primary sources of data and secondary sources of data.

i. *Primary Sources of Data*

Information from primary sources is called primary data. They are original. Sources of such information were the respondents. Primary data from primary sources. Primary data from primary sources have been collected using:

1. Written Questionnaires
2. Structured Interview Questionnaires
3. Structured Personal Observation

1. Written questionnaire

This is a very good instrument in gathering original information from the sources since the respondents are free to fill the opinion what they feel without any pressure. Therefore, the researcher selected this instrument for this reason.

2. Structured interview Questionnaire

This involves the use of a set of predetermined questions and has standardized technique of recording. This method is preferable for the following reasons:

a. The questioner is administered by enumerator himself /herself and attains higher response rate.
b. The presence of enumerator (interviewer) decreases the number of "don't know" or "no answer".
c. The enumerator can reduce confusion of questioner items.

3. Structured Observation

This is structured and preplanned. The researcher had careful look at the investors/their representatives to know how they handle their activities & their expected return in the market, or the observation made at some museum and tourist attraction places.

ii. *Secondary Sources of Data*

Secondary data is not collected for the just time & it is not original. Documents have been used as a source of information which has been obtained from investment bureau of Jimma Zone, Jimma town.

[3] From robert Radcliffe (1996)
[4] From robert radcliffe (1996)
[5] From Bodie Kane Marcus

b) Data analysis and Interpretation

Firstly, in this part, after the problem of the study was defined, the next step has been defining the population. In this specification of the population, all investors activating in the zone have been taken into consideration.

c) Sampling Technique and Size

Since the number of the population is large and there were time constraints, non-probability sampling method of data collection was preferable.

The sample sizes that the investigator used is out of 1000 total population 10% have been the respondents to his questionnaires. That means 1000X10% =100 people.

d) Method of analysis

The collected data were processed and analyzed. Raw data have been examined to the purpose of making it accurate in the control editing. As most of the questions are not related with the quantitative responses, some of the data have been processed using computers. For instance grouping related information's in to one and using for calculating some simple calculations.

e) Method of Presentation

Finally, the data collected and analyzed have been presented using different methods such as tables, pie charts, etc. and the finding has been compared and discussed with relevant literatures.

Chapter Four

IV. Data Analysis

a) Content of Investment

The respondents selected have replied for the questionnaires, concerned the investment level and background in the zone.

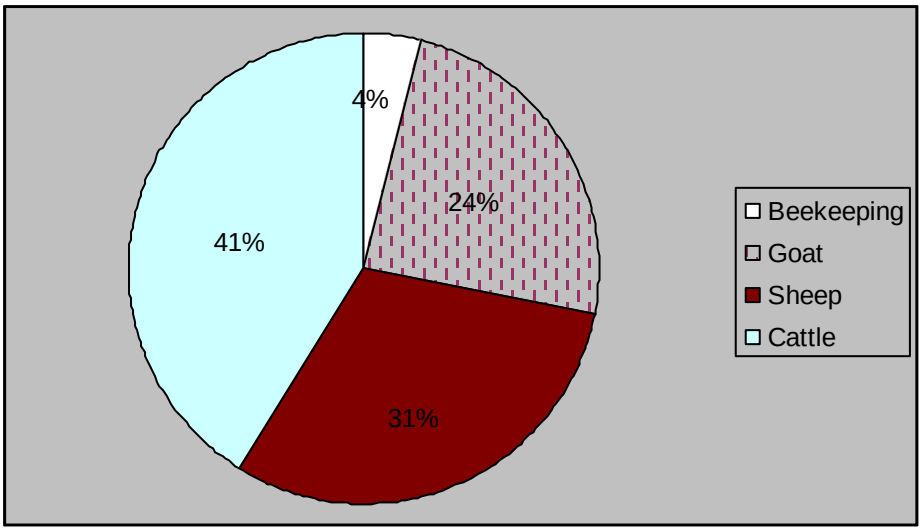
i. *Agricultural and Agro-Processing Types (Appendix- I: 36, No.1-3)*

Table 1: Agricultural and agro processing types

	Production of crops	Oil bearing crops	Catton	others	Total
Frequency	78	11	11	-	100
percentage	78	11	11	-	100

As the respondent replied, the zone has investment potentials in production of crops, i.e. 78%. There are some factors that contribute to low production of crops such as; the mismatch of the investor's need of investing on one type of crop and the available land in that are which is suitable for production of other type of crop, expensiveness of fertile and erosion of land by water. There is also potentials of oil bearing crops which is about 11%. When we see the overall potential of the area there is no as much potential for production of oil bearing crops. By the same amount of oil bearing crops, there is a potential of cotton production, which its major problem is absence of close market for the product. If all these agricultural and agro- processing types improved, the rural residents who live under poverty line can improve their income and their life standard.

ii. *Types of Livestock Production*



Chat 1: Livestock production in the zone

As the respondents replied the zone has investment potentials in production and processing of livestock, which can improve the living standard of the people who engage in animal husbandry, if effectively

conducted. The chart shows that 41% of them replied that production of cattle share the major, relative to other in the zone. The factors that contribute to low production of cattle are: the weather condition of the area which is changeable and can also change the availability of grass and water for cattle which is the reason for fluctuation of its availability throughout the year; availability of transmitted diseases of animals which indicates as there is insufficient health care for animals. 24% of the respondents said that goat and 31% of them sheep production potentiality is there. Little areas which is suitable for sheep rearing is the factor that contribute to low production of sheep in addition to weather condition of the zone. Weather condition is a factor also for low production of goat. Additionally, there are others such as bee keeping which constitutes 4 %. The reasons for low production are: because beekeeping is relatively unordinary type of livestock production and there is no much initiation of beekeeping. These all livestock production types can solve the problem of rural to urban migration or unemployment in animal husbanding areas.

iii. *Investmen in Social Service Sector*

Table 2: Investment in social service sector

	Education	Health service	Infrastructure	Total
Frequency	35	35	30	100
percentage	35	35	30	100

As the table indicates the zone's suitability for both education and health service sub-sector is almost equal which 35% is. Relative to past decades these are some what improving. The major problems with education sub sector are: the workers (teachers and others) are refusing to serve in remote areas and inadequacy of infrastructure. The same to this, in health sub sector the factor contributing to low health sub sector is reluctance of workers to serve in remove areas. And in addition insufficiency of materials in health centers. Regarding infrastructure facilities, the major factors contributing to low expansion of infrastructure facilities are the following. Since the landscape of the zone is not easy for instance to construct a road, it requires so many costs (i.e. its expensiveness). The other problem with infrastructure problem is absence of effective use of the available facilities. The improvement of these sub-sectors can alleviate the problems of unemployment, which can indirectly improve the living standard of mostly urban dwellers. There is also potentials of 30% for infrastructure sub-sector. This sub-sector can also solve the problems such as unemployment by hiring unemployed persons for construction of these infrastructure facilities; better provision infrastructures for urban dwellers, and also for rural residents.

iv. *Small Scale Industries in the Zone*

Table 3: small scale industries in the zone

	Metal work	Weaving	Total
Frequency	60	40	100
percentage	60	40	100

Metal work and weaving are types of small scale industries which are conducted mostly in rural areas, which constitute 60% and 40% respectively. These can reduce the problem of unemployment in rural areas. The main problem with this sub- sector is the frights or shame that some persons are feeling in doing such works.

v. *Sectors Available in the Zone*

Table 4: The available sectors in the zone

	Manufacturing and processing industries	Mining industries	Forestry	Others	Total
Frequency	56	18	26	-	100
percentage	56	18	26	-	100

As the respondents replied, the zone's potentiality for manufacturing and processing industries shares the majority (i.e. 56%). The factors that contribute to low manufacturing and processing industries are the following. Its expensiveness; mismatch of the available raw materials and the industries proposed to do in that area and infrastructural problems. This manufacturing and processing industry is followed by forestry (26 %). The residents are cutting and using it ineffectively the available forests in order to get their daily livelihood. This is the factor that contributes to low forestry. Mining industry constitutes 18%. The existing low minerals in the zone are expensive to excavate. And the other problem with this sub-sector is infrastructural facilities.

vi. *The Reason Behind Low Museum and Tourism in the Zone*

The zone has some breathtaking artificial and natural tourist attractive sites, which if developed properly, will have economic importance for the development of the zone these are the following.

- ✓ The historical palace built by king of AbaJifar II known as AbaJifar II palace which is in Jimma Town
- ✓ Seka Water fall in Seka district
- ✓ Belete Chaka forest in Shebe
- ✓ Jimma Museum, which displays ancient cultural antiques and historical remains of the surrounding society which is found in Jimma town.
- ✓ The Origin of Organic Coffee(Coffee Arabica Tree)
- ✓ Gibe dam in Asendabo.

The number of tourists visiting the sites and annual revenue earned from them are however, insignificant. The reason behind this is the following.

- ❖ In the society itself, there is no as much custom of exhibiting museum and attractive areas.
- ❖ The available museum in the zone is far away from the residents out of the capital.
- ❖ There is no adequate services of hotels and others in such attractive areas, which can serve also as station.
- ❖ Since such attractive areas (Water fall & others) are around jungle, there is fear of dangerous wild animal such as snake, leopard etc.

If all these condition are properly fulfilled, problems such as unemployment and other social service problems will be solved.

vii. *Minearal Resources Abailable In The Zone*

Table 5: Status and ownership of mineral resources

Name of mineral	Status		Owner	
	Exploited	Not Exploited	Private	Government
Sand for building	100	-	25	75
percentage	100	-	25	75

As the respondents' response, sand from building constitutes the majority of mineral available in the zone. All of the existing sand is exploited. Among the existing mineral 75% is occupied by government and the remaining 25% is by owners. The major problem with this is the road problem followed by other infrastructure problems.

viii. *Infrastructure Facilities in the Zone (Appendix -I: 37, No.4-10.2)*

Infrastructure facilities are the basis as well as the result of good investment. That means if there is adequate infrastructure, the investment will expand well. On the other hand, if the investment activity of one area is at a good level, there will be adequate infrastructural facilities which are a part of investment. The major factor that contribute to low infrastructural facilities are the following.

- Far apartness of sources of water for water supply & electric power generation.
- In adequacy of pipes and other necessary materials for provision of clean water supply.
- In the past decades there was a problem of electric pole production which is almost solved by establishment of electric pole production industry in the zone.
- The zone's landscape which is very unsuitable and requires high cost for paving the road.

The telephone problem in the zone is on the way to be solved, and almost solved other than mobile telephone service problems such as network problem.

- The major problem of postal service is that, it consumes time.

Table 6: Infrastructural facilities

	Poor	Fair	Total
Frequency	78	22	100
percentage	78	22	100

78% of the respondents said that there is poor infrastructure in the zone. Only 22% replied as there is fair infrastructural facilities.

Table 7: Inadequacy of infrastructural facilities

	Telephone	Postal service	Transport	Other	Total
Frequency	37	12	49	2	100
percentage	37	12	49	2	100

As the table above shows, transport (49%) is the major inadequate infrastructure followed by telephone (37%) and postal service (12%). There are also other (2%), such as electric power generation and clean water supply.

ix. *The Major Factors that Contributed to the Limited Level of Investment (Appendix -I: 38, No.5-7)*

Table 8: Factors limiting investment activity

	Lack of resource	Climatic condition	Lack of awareness	Political factors	Social factor	others	Total
Frequency	27	11	16	24	21	1	100
percentage	27	11	16	24	21	1	100

Among the selected respondents, 27% replied that lack of resource resulted to low investment activity in the zone. That means one person needs resources which are necessary for starting investment activity. Lack of these resources is the major factor that contributed to limited investment activity in this zone. This lack of resources is followed by political factors (24%), which is also a decisive factor. When we say political factors, there is a discrimination of one person from the other in respect of his/her political involvements. And also there is a fear of discontinuously of incentives given by government assuming that political chaos may occur in the country. Social factor is also one of factors for limited investment activity in the zone, which constitutes 21%. These social factors are such as absence of close relationship between investors and the society. Climate condition of the zone is also another factor consisting 11%. Climatic condition of some areas in the zone is not suitable for investment types required to be conducted there. There is also other factor which constitutes 1%, such as corruption.

3. Structured Interview (Appendix-II: 39, No.1-4)

x. *The Effect of Limited Investment Activity on the Economy (Appendix-Ii: 39, No.1-4)*

When the researcher investigated, generally this limited investment activity is a cause for low economy of the area. And indirectly an obstacle for the expansion of

job opportunities; a cause for living under poverty line of rural residents; a reason for living with low standard of living of urban dwellers; a reason for the absence of manufacturing industries and also a reason for the other social service problems.

The relationship between the investors and the residents of the area is not as much satisfactory.

b) Information Gathered from Urban Development and Investment Bureau

Some data and information were collected specifically from these bureaus regarding investment activity in the zone.

i. *The Role of Urban Development and Investment Bureau in Investment Activity*

Urban development bureau contribute to the expansion of investment activity in the area by;

- Preparing and distributing suitable land around the towns for investors work around the town.
- Helping town administration to fulfill infrastructural facilities.
- Approving design and monitoring construction
- Helping investors by giving them some licenses and incentives.

ii. *Major Investment Activities Accomplished in the Past Decade in the Zone (Appendix -I: 38, No.5).*

Table 9: Investment activities accomplished in the past decade

	Water supply	Electric power generation	Construction of large scale industries	Others
Frequency	48	48	3	1
percentage	48	48	3	1

In the past ten years there were a construction of water supply and electric power generation which constitutes 48% each. This show improvement in the supply of water for the urban dwellers living with low standard of life and electric power for both rural and urban residents. Large scale industry was also constructed around the capital of the zone constituting about 3% of the respondents. There is also another with the share of 1%, constituting agriculture and construction of small scale industries.

c) Information Obtained from the People Who are Engaged In Investment Activities

i. *Investment Activities the Investorsare Engaged in*

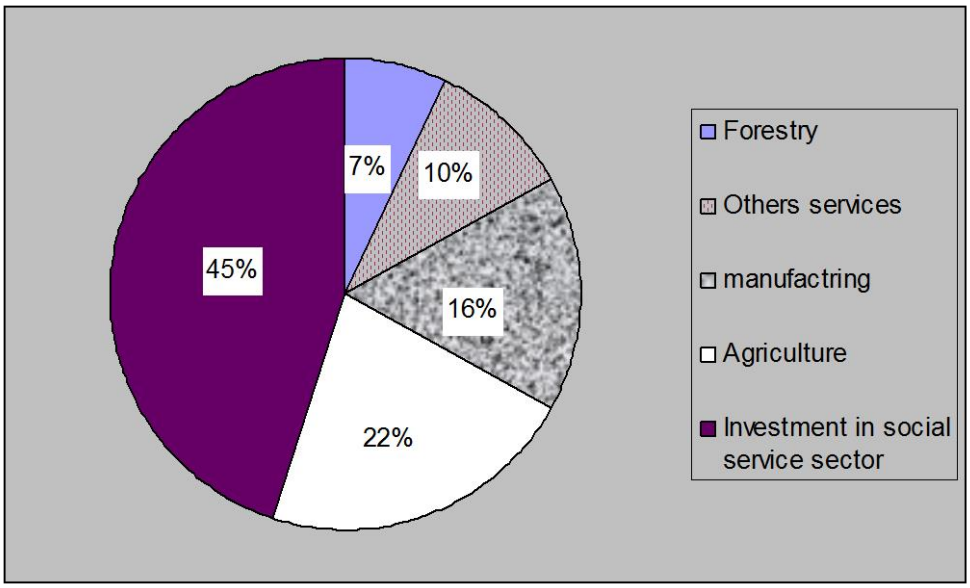


Chart 2: Investment activities the investor are engaged in

The above pie chart indicates that majority that majority of the investors in the zone participate in investment in social service sector (45%) followed by agriculture (22%) and manufacturing (16%). There are

also other services such as hotels and others constituting 10%, which the investors are engaged in. some investors are participating in forestry which constitute about 7%.

ii *Kinds of Pro blems the Investors Face*

Table 10: Kinds of problems the investors face

	Social problems	Government/ political	Infrastructure	Other	Total
Frequency	11	40	49	-	100
percentage	11	40	49	-	100

According to the above table, the problems faced them is from government/political side (40%), next to infrastructure constituting 49%. There is also some problems related to the society which is about 11%. This indicates that infrastructure is the major problem of investors which limit their investment activity. This can indirectly result urban dwellers to live with low standard of living, and also result to unemployment. Another is government/political problems which result in unemployment and absence of manufacturing industries. Additionally there are social problems such as disagreement between investors and the society.

iii. *Kinds of Incentives given by Government*

Table 11: kinds of incentives given by government

	Loan from bank	Land fee	Exemption from tax	Market for good/service	other	Total
Frequency	25	31	19	25	-	100
percentage	25	31	19	25	-	100

The support or incentives the investors get from government are in the form of loan from bank and provision of market for their goods/services which are the highest, next to fee land (31%) constituting 25% each. There is also an incentive such as exemption from tax which is 19%. The researcher recognized from this that, incentives or supports given by government is not as poorer especially, regarding land given to investors. On the other hand exemption from tax of their land seems unsatisfactory. So this has to be improved.

4. Structured Personal Observation (Appendix-III: 40, No.4)

To help Jimma Zone Community in improving their investment climate, development agencies should support interventions that contribute towards achieving the following intermediate and mutually reinforcing objectives as the investment opportunities:

a. Lower the costs of investment

This refers to the costs of doing business (*e.g.* the costs of complying with the policy, legal and regulatory frameworks in which the private sector operates, including the extra costs created by inadequate infrastructure, crime, corruption and excessive red tape). High costs reduce profits and discourage investment. They also create disincentives for firms to formalise, with a resultant loss of benefits to the economy.

b. Reduce risks

This involves policy and institutional reforms that improve the stability of the investment climate and the predictability, real and perceived, of returns on investment, including by making the implementation of regulations established by national and local governments more predictable and enforcement of the rule of law morerigorous. A well-functioning financial market is crucial for managing the risks associated with firms and expanding production, especially for the many small domestic firms that rely on internally generated cash flows and money provided by family and friends.

c. Improve competition

A more competitive investment climate improves efficiency, encourages innovation and is a key factor driving productivity improvement in the short run. This often calls for the sequenced removal of policies or laws that protect markets or allow anti-competitive behaviour by public or private sector actors. A competition law and policy can help curb uncompetitive practices and engender a culture of competition.

d. Develop capacity

Reforming the investment climate is a political process and relies on effective institutions and the ability of the private sector to identify key constraints to investment and to lobby for and help implement change. There is thus a need to support initiatives that build up

the capacity of public and private sector stakeholders to engage in political process and to implement policy reforms. Capacity development can also improve the private sector's ability to cope with constraints and changes in the business environment and its capacity to innovate by adopting new technologies and expanding entrepreneurial skills.

d) Challenges of Investment Activities for Jimma zone (Appendix-III: 40, No.5)

Much is already known about what should help promote private investment. To flourish, the private sector requires a stable and predictable investment climate that comes from macro-economic stability, transparent and accountable government, rigorous enforcement of the rule of law, functioning markets and institutions, a skilled and productive labour force, a strong commitment to fighting bribe solicitation and corruption, affordable and accessible infrastructure, intellectual property right protection and political and social stability. But Jimma zone contexts differ – including the size and maturity of their markets and governance conditions – as do the needs and especially the risks faced by different types of investors. To improve the investment climate, reforms should build on an analysis of the zone and sector-specific constraints to private sector development andan assessment of the zone's competitive advantage. Most of what needs to be done to mobilise investment is the responsibility of government offices and the private sector themselves. Nevertheless, ODA can help facilitate processes and promote the supply-side responsiveness of firms in Jimma zone. But using ODA to promote investment entails several challenges for Jimma zone and its development agencies.

e) Private investors are diverse

It is important to recognise the diversity of private investors – domestic or foreign, large or small, formal or informal – when assessing barriers to investment. Priority areas for interventions are likely to be different for each group and need different responses:

i. The private sector in developing countries, such as Jimma zone is often made up of a very large number of small and medium-sized enterprises (SMEs) and a small number of well-established, larger firms. To help fill this gap, SME growth can be promoted by focussing on their specific needs such as expanded access to financial services and support to participate in processes that set the strategic framework for regional development. SMEs can also need greater access to the associations and enterprises that will help them improve their competitiveness and raise their capacity to link up with larger firms, both domestic and foreign. Fixed business costs weigh more heavily on SMEs. Therefore, there is a case for introducing graduated schedules of payments (*e.g.* taxes, registration fees) or regulatory requirements based on firm size, rather than exemptions which can create disincentives for firms to grow or lead to unfair competition. A disproportionate number of women-owned businesses are SMEs. To help unleash women's entrepreneurship, specific, targeted initiatives may be needed to address gender biases that prevent women's enterprises from making their full contribution to growth and poverty reduction although direct interventions should not lead to market distortions.

However, concentrating on the SME sector to the quasi-exclusion of micro/informal enterprises and large enterprises should be avoided. Policies are also needed to remove barriers to micro/informal enterprises joining the ranks of the SMEs, as well as to support the latter growing into large enterprises as observed in selected areas of the zone.

ii. The informal economy forms a large part of the economies in many developing countries (OECD, 2004b:37). It provides employment and income to many poor households, including those who lose or cannot find work in the formal economy. It includes a disproportionate number of women and people from disadvantaged groups. But informality is not conducive to sustained growth and poverty reduction – it distorts markets, excludes people from basic protections and reduces revenues for social and other public expenditures. There are substantial assets held in the informal economy that could be used to help spur economic growth but fail to fulfil their productive potential. Formalisation also brings benefits for firms they are often unaware of, including greater access to the financial and other resources that will help their business to grow. It also helps them better deal with risk and vulnerability. Informality is not only a consequence of a weak investment climate; reducing informality will make an economy more attractive for investors. There is a continuum between informality and formality – few firms follow all the rules governing enterprise behaviour and few follow none of them. To promote movement towards a greater degree of formality, constraints to address include regulatory and administrative barriers, fees and financial requirements, corruption in public administration, socio-cultural attitudes and a lack of key business services. Making business services available to associations of informal firms and workers can be a first step along the path to greater formalisation (OECD2001:14). Development agencies in Jimma zone need to ensure that their efforts to improve livelihoods for those in the informal economy do not hold back tendencies towards greater formalisation.

iii. Foreign direct investment (FDI) should be encouraged, not only for the extra capital that it brings, but because it can lead to technology transfers, better human capital formation, deeper international trade integration and a more competitive business environment. Ideally, FDI projects should provide opportunities for competitive local firms to forge forward and backward linkages. There are four main determinants for attracting FDI: *i)* market size and growth prospects; *ii)* natural and human resourceendowment; *iii)* physical, financial and technological infrastructure; and iv*)* Openness to international trade and access to international markets. Some of these can be improved through investment-enhancing ODA if Jimma zone,at the grass root level enhances its investment activities.

In the least-developed countries like Ethiopia, which have still to benefit from sizable FDI inflows, particular efforts appear necessary to improve the functioning of financial markets, expand infrastructure, increase skill levels and connect up better with local enterprises. Foreign investors sometimes have difficulties assessing the risks of doing business in Jimma zone. Making accurate information on market conditions and experiences of other foreign investors more readily available will help address this. In addition, nationals abroad can have more accurate perceptions of conditions at home and can be encouraged to invest in their country of origin(OECD 2001:37).

f) *Trade liberalisation needs complementary policies*

Trade and investment are closely linked and complementary activities for modern business operations. For potential foreign investors, the ability to import and export easily is an important aspect of the investment climate. In the long-run, greater openness accelerates growth and leads to greater competition and efficiency in domestic and international markets. But, in the short-run, trade liberalisation may either increase welfare for the poor (if they are employed in export sectors or consume previously protected products) or decrease welfare for the poor (if they are employed in protected sectors or consume goods destined for export).

Complementary, compensatory and time-bound measures are generally needed to help the poor adjust to structural changes and take advantage of opportunities created through trade liberalisation. Therefore, to help firms in Jimma zone participate in regional markets where adherence to high business standards is required, Jimma zone administrators and development agencies can promote adoption of responsible business practices in such areas as labour relations, the environment and anti-corruption. The *OECD Guidelines for Multinational Enterprises* are a useful reference as they contain a set of recommendations for responsible business conduct that aim to promote the positive contributions that investment activities can make to economic, environmental and social progress.

g) Natural resources can be a mixed blessing

Abundant natural resources provide a basis for growth in Jimma zone and investment can help expand this zone' primary export sector. But some of this zone experience a "resource curse" and grow more slowly than those with fewer natural resources. As demand for commodities may remain strong for some time, further investments to expand extractive industries can be expected. Developing value chains that link natural resources up to processing activities using domestic suppliers of goods and services will help produce higher returns create more jobs and ensure that the resulting growth is broader-based and more sustained. So too will efforts to reduce corruption and strengthen public financial management. It is important that extra revenues that governments may receive through royalties and taxes do not reduce pressures to reform and that Jimma zone pay attention to the possible environmental degradation that can result from intensive use of natural resources.

h) Public-private partnerships should help promote private investment

The motivation behind the public-private partnership (PPP) approach is to maximise interactions between the public and private sectors so as to deliver public services, such as water, electricity or telecommunications, more efficiently and to more people, and to improve the quality and the affordability of access to services provided. PPPs can take many forms – ranging from a private firm providing a public service for a specific period to "design-build-operate-transfer" arrangements. As well as leveraging extra funding and encouraging efficiency gains, entering into a PPP can motivate governments to identify and prioritise their infrastructure needs. But, establishing appropriate framework conditions for PPPs has often proved to be a complex task, particularly in small markets and in some sectors such as water.

Governments have complained that investors have reneged on contractual obligations, especially regarding the coverage of services, while investors have complained that the business environment has not been conducive to delivering services according to sound commercial principles. Other important issues that have arisen include the pricing of the basic services provided, arrangements regarding poor people's access to services, financing operating and maintenance costs and mitigating non-market risks. A structured dialogue between the public and private sectors can help identify common goals and facilitate better understanding of each partner's objectives. Results to date with PPPs have been mixed and lessons need to be learnt and

applied. To avoid pitfalls encountered in the past, careful attention is required when contracts are being negotiated as researcher's personal observation revealed.

i) Expectations need to be kept realistic

The researcher investigated more about the institutional and policy reforms that should improve the necessary conditions for investment. However, the managers are less clear about how to bring about the conditions that will lead to more investment, particularly in Jimma zone that appear to have low growth potential. This highlights the importance of working both on the enabling environment as well as strengthening the supply-side capacity of the local private sector, including by promoting entrepreneurship and innovation through education and vocational training, research and development, technology transfers, making access to finance and other inputs cheaper and less cumbersome, and reducing the costs and formalities associated with creating and closing firms. Efforts to mobilise investment should not focus only on expanding production of existing goods and services; improving the investment climate will also help new economic activities to emerge.

5. Document Analysis from existing written Materials

Enhancing the contribution of investment to reducing poverty (Appendix-IV: 41, No.1)

To enhance the impact of private investment on poverty reduction, which in turn should make growth more rapid and sustained as well, policies need to ensure that poor women and men participate in, contribute to and benefit from the growth process:

i. Obstacles that limit poor people's access to labour, land and other markets need to be removed. The poor may need help to increase their assets and legal rights as well. So that reforms translate into development results throughout the selected areas of the zone, efforts are needed to ensure that poor people are aware of the availability of services and of their rights, and that these rights can be enforced. Awareness campaigns in local languages, the establishment of help lines to report abuses by public officials and greater access to functioning small claims and commercial courts can help improve the implementation of reforms.

ii. Women face specific constraints to participating in labour, financial, goods and services markets because of social norms, biases, prohibitions and gender divisions of labour. This jeopardises efforts to spread the benefits of growth among the poorest. Policies that can help expand female participation in markets and make the creation or formalisation of women's enterprises easier include increasing access to health care and infrastructure that meets women's needs, expanding school enrolment for girls and supporting laws that reduce gender discrimination in pay and working conditions. Making the experience of successful women entrepreneurs widely available can inspire and motivate other women.

iii. The poor are heavily dependent on natural resources and environmental costs bear hardest on the poor. Environmental degradation is not the inevitable cost of economic development. Rather than trying to mitigate the environmental impact of policies and projects, Jimma zone and their donor partners should use tools such as Strategic Environmental Assessments to help make informed choices. Central to such an approachis effective governance and fiscal policies that change incentives in favour of environmental sustainability and growth.

iv. A well-developed financial sector, including a more integrated micro-credit sector, can expand access to an array of financial services (such as payment instruments, saving facilities, credit and insurance) for poor people and micro-entrepreneurs. It is also important for financing long-lived infrastructure assets. In countries with less developed financial sectors, development agencies should give priority to helping create a conducive enabling environment, through support for regulation, supervision and promotion of financial systems. In more sophisticated economies, development agencies can give higher priority to supporting policies and projects that extend the provision of financial services to the poor and small firms, on terms and conditions more adapted to their needs. Expanding access to banking facilities for the many "unbanked" in Jimma zone – through outreach, use of ICT and more cost-efficient and transparent services – will also help channel remittance payments more cost effectively and enhance their contribution to mobilising investment.

v. Inadequate and insufficient infrastructure is a major obstacle to growth, trade and investment and raises the production and transaction costs of doing business. Investments in transport, energy, and water and ICT services are also essential to bring poor people closer to local, national, regional and global markets. To meet the infrastructure challenge in selected areas of Jimma zone, four guiding principles should be applied (Appendix IV: 41, No.2):

i. use partner country-led frameworks as the basis for co-ordinated donor support;
ii. enhance infrastructure's impact on poor people;
iii. improve management of infrastructure investment, to achieve sustainable outcomes; and
iv. Increase infrastructure financing and use all financial resources efficiently. To help meet this challenge,

private sector participation in infrastructure investment needs to increase, including through PPPs where there is official

v. financing support for export credits; these need to bear in mind international obligations about trade distortions and subsidies.

There has been considerable underinvestment and disinvestment in agriculture, especially in Africa (OECD 2001:67). In some cases, this has been due to local agricultural produce not being able to compete with imported goods. Yet agriculture remains a key sector because enhancing growth prospects, productivity and diversification will contribute significantly to growth and poverty reduction. Hence, most poor people in selected areas of Jimma zone engage in private sector activities through farming and associated agribusiness. Increasing access to markets and assets, improving access to productivity-enhancing technology (especially for small produces and agribusinesses) and boosting investment in power, irrigation and road infrastructure are critical for releasing the economic potential in rural areas and expanding the domestic private sector.

Chapter Five

V. Conclusion and Recommendation

a) Conclusion

In Jimma zone, even though the potentiality of the area has not been studied before fully, according to this investigation it is concluded that Jimma zone has great potential for investment. The general structure of landscape, and its scene tic nature have made it to have different weather conditions, good rainfall which make it suitable for the growth of different types of crops (such as sugarcane, coffee, oil bearing crop etc), and cotton production. The landscape and weather condition of the zone is also conductive for live stock production, such as cattle, sheep, goat and beekeeping. Investment in social service sector and small scale industries are the types of investment activities available in the zone and which have to be expanded more. Manufacturing and processing industries, mining industry and forestry sectors are also available. In addition, there found museumand tourists attraction area in Jimma zone. But compared to these potentialities investment sector is found in poor condition in the zone.

The development of investment sector for the future also seems one of the disgusting one, if the problems identified are not alleviated properly. Factors that contribute to this low investment activities in the zone are a lot. But, the general problems are seen from, government side, investors themselves and natural factors. The government has not made sufficient survey on natural resources, has not gave much attention on the development of infrastructural facilities, has not gave fair treatment or incentives (i.e. based on political involvement), has not strengthen the exchange of information and consultancy services for investors and others.

Investors have also problems such as lack of awareness (i.e. lack of knowledge about investment and absence of carefulness when they are doing their activities), and lack of strong coordination with the society.

In addition there is also a problem of mismatching of available factors (potentials) of some parts of the zone with the investment types which have to be conducted there. For instance, in urban parts of the zone there may be rainfall and land which is suitable for the production of crops and vice versa which is generally concluded as climatic condition and lack of resources.

b) Recommendation

To overcome these and all other problems that contribute to low investment activities in the zone, the following points may be recommended to the government and the general public.

- By matching the activities conducted in one area with he climate suitable for the activities
- Developing infrastructural facilities in key areas of investment, especially in low developed areas.
- Creating good relationship with other zones of the region
- Government and other investment related bureaus have to activity participate in fulfilling infrastructural facilities
- Government has to give fair and equal treatment or incentives for all investors by not discriminating them based on political involvement.
- Providing sufficient information of investment possibilities by giving some councils to the public and aware those investors about other investment alternatives
- Preparing and conducting panel's discussions and meetings year, quarterly, or monthly concerning investment activities in order to bring together the government and those investors to solve investment related problems.
- Those investors should be able to prepare themselves to create other investment opportunities in addition to what they are currently doing (i.e. they have to be flexible).
- Investors have to choose properly the area which is suitable and match with the type of investment activity they are going to do.
- Inviting new investors also from other places e.g. Foreigners.

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Appendix - I

Questionnaires to Collect Information from beneficiaries of investment

The following questions are designed to collect data and information regarding investment activities, factors that hinder its development, its impact on the zone's economic development.

The questions are prepared in two languages; i.e English language as well as Afan Oromo language for some respondents in a way that it is simple and easy to comprehend.

Request to the Respondents

1. Read the statement carefully and try to be objective to the possible extent.
2. For "yes" or "No" responses make " X" mark on the space provided
3. For description questions try to be clear as much as possible.

A. Written Questionnaire

The following questions are designed to gather information on opportunities for investment activities in Jimma Zone. The respondents for these questions will be some residents or users of investment out come and other sections.

1. Agricultural and agro-processing
   - Production of crops _____
   - Oil bearing crops _____
   - Cotton _____

- Others (specify) _____

2. Production and processing of live stock
   - Cattle _____
   - Sheep _____
   - Goat _____
   - Others (specify) _____
3. Manufacturing and processing industries _____
4. Mining industry _____
5. Investment in Social Service sector
   - Education _____
   - Health Service _____
   - Infrastructure _____
6. Small scale industries
   - Metal work _____
   - Weaving _____
7. Forestry _____
8. Others (specify) _____
9. Museum and tourist attraction areas in the gone

No	Types of attraction	Location

10. Mineral resources in the zone.

Name of Mineral	Status		Owner	
	Exploited	Not Exploited	Private	Government

10.1 Adequacy of mineral resources
Poor _____ Fair _____
10.2 Inadequacy of mineral resources

a. Telephone _____
b. Postal Service _____
c. Transport _____
d. Other _____

5. What are the major factors that contributed to the level of limited investment in this zone?

- Lack of resource _____
- Climatic condition _____
- Lack of awareness_____
- Political factors _____
- Social factors _____
- Others (specify) _____

6. What effects do you think that these limited investment activities have on the economy of the zone?

_____
_____

7. What kind of cooperation and coordination do you have with investors operating in the zone?

_____
_____

Appendix-II

B. Structured Interview

Questions designed to be filled by trade and investment Bureau, & bureau of urban Development.

1. What is the role of your bureau in investment activity? (Ga'een Waajjira keessanii "invastimentii" hirmaachisuu fi babal'isuu irratti maali?)

   _____

   _____

2. What were their major investment activities accomplished in teh past decade in the zone? (Hojiiwwan "invastimentii gurguddoo waggoota kudhanan darban zoonii kana keessatti raawwataman maalfaadha?)
   - Water supply (tajaajila bishaan dhugaati) _____
   - Power generation (tajaajila humna ibsaa) _____
   - Construction of large scale industries (ijaarsa industiry gurguddoo) _____
   - Other (kanbiroo) _____
3. What are the major factors that contributed to low level of investment in this zone? (Sababootni qurguddoon guddina "invastimentii" zoonii kanaa xiqqeessan maalfaadha?)
   - Lack of resource (rakkoo qabeenyaa) _____
   - Climatic factors (haala qilleensaa)_____
   - Political factors (rakkoo siyaasaa) _____
   - Lack of motivation (kaka'umsa dhabuu) _____
4. What do you think can contribute to encourage potential investors and activate the level of investment activity in this zone? (Haala amma jirru kanaarra fooyya'ee guddina saffisiisuu fi " invastimantii" babal'isuuf maaltu ta'uu qaba jettee yaadda?

Appendix - III

C. Structured Personal Observation Checklist

The following questions are designed to be observed by researcher who is conducting research on the investment activities in the zone.

1. What are the investment activities the investors are operating or engaged in?
   - Agriculture _____
   - Manufacturing _____
   - Investment in social service sector _____
   - Forestry _____
   - Others (specify) _____
2. Problems the investor's face
   - Social problems _____
   - Government /political _____
   - Infrastructure _____
   - Others (specify)_____
3. Support or incentives given from government
   - Loan from bank _____
   - Fee land _____
   - Exemption from tax _____
   - Market for your good or service _____
   - Others (specify) _____
4. What are the investment opportunities that development agencies support?
5. What are the investment challenges for Jimma zone ?

Appendix – IV

D. Document Analysis

1. What does the existing document denote to enhance level of the activity? (Description of ideas are requested by researcher's observation)
2. How do we enhance the contribution of investment to reducing poverty in Jimma zone?
3. What are the guiding principles that we apply for achievement of the infrastructure challenge?

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Differentiating Charter Elementary Schools from Traditional Publicelementary Schools

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Abstract- In this study, the extent to which differences were present in teacher characteristics between charter elementary and traditional public elementary schools in Texas was addressed. The Moreno and Slate (2016) study was replicated in this investigation to determine whether the percentage of beginning teachers continued to be the major school characteristic that most differentiated charter schools from traditional public schools. Participants in this study were charter and traditional publicelementary schools in Texas in the 2014-2015 school year. Canonical stepwise discriminant analyses were conducted to determine whether teacher characteristics (i.e., base salary average, teacher tenure average, teacher experience, beginning teachers, teachers with no degree, teachers with bachelor's degree, teachers with master's degree, teachers with doctoral degree, Blackteachers, Hispanic teachers, male teachers, and female teachers) could differentiate charter elementary schools from traditional public elementary schools.

Keywords: charter school, traditional public school, beginning teacher, experienced teacher, highly qualified teacher.
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Differentiating Charter Elementary Schools from Traditional Publicelementary Schools

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Abstract- In this study, the extent to which differences were present in teacher characteristics between charter elementary and traditional public elementary schools in Texas was addressed. The Moreno and Slate (2016) study was replicated in this investigation to determine whether the percentage of beginning teachers continued to be the major school characteristic that most differentiated charter schools from traditional public schools. Participants in this study were charter and traditional publicelementary schools in Texas in the 2014-2015 school year. Canonical stepwise discriminant analyses were conducted to determine whether teacher characteristics (i.e.,base salary average, teacher tenure average, teacher experience, beginning teachers, teachers with no degree, teachers with bachelor's degree, teachers with master's degree, teachers with doctoral degree, Blackteachers, Hispanic teachers, male teachers, and female teachers) could differentiate charter elementary schools from traditional public elementary schools.The canonical discriminant analysis revealed that the two school types could be statistically significantly differentiated, with the percentage of beginning teachers again making the most important contribution to the group separation. Charter elementary schools were more likely to have a higher percentage of beginning teachers, Black teachers, and teachers who did not have a college degree than were traditional public elementary schools. Implications of the results and suggestions for future research are provided.

Keywords: charter school, traditional public school, beginning teacher, experienced teacher, highly qualified teacher.

I. Introduction

Charter schools started to operate in Texas in 1995. Since then, they have expanded tremendously. Within the last 10 years, student enrollment at Texas charter schools has increased over 244% (Texas Education Agency, 2016). With the expansion of charter schools, teachers have more opportunities to seek for the school type for which they believe may be a better fit to their needs or teaching styles. Whereas some teachers opt to work in traditional public (Cannata, 2011), other teachers base their decision of working for a charter or a traditional public school on other aspects such as working conditions and instructional support (Wei, Patel, & Young, 2014).

Although charter schools follow the same accountability standards as traditional public schools, they do not receive the same funding as traditional public schools. By not receiving the same funding as traditional public schools, charter school have challenges in hiring and in retaining experienced teachers who may earn higher salaries by working at traditional public settings than at charter schools (Barden & Lassmann,2016). Charter schools are also facing a shift in the teaching profession and they are employing more new and younger teachers who are coming from non-traditional teaching backgrounds (Stuit & Smith, 2012). More than one third of charter school teachers are under 30 years old, and have less than three years of teaching experience (Stuit & Smith. 2012). Another challenge for charter schools is a high teacher turnover rate, losing an average of one in four teachers every year, which may affect the quality of instruction and the instructional stability (Stuit & Smith, 2012).

In an effort to improve the quality of instruction, the Department of Education created the No Child Left Behind Act (2001), which purpose was to improve the academic achievement of the disadvantaged and to close the achievement gaps between minority and nonminority students by providing high quality education. Even though, charter schools in Texas serve a high number of minority students (Penning & Slate, 2011), and the No Child Left Behind Act stipulated that charter schools needed to have highly qualified teachers-understanding that highly qualified teachers was synonymous to certified teachers-Texas, Georgia, and Arizona are three states that do not require teacher certification in charter schools (Maloney & McKenzie-Thompson, 2013).

In a study of importance to this empirical investigation, Moreno and Slate (2016)examined school characteristics to determine whether charter schools could be differentiated from non-charter schools in Texas at the elementary, middle, and high school levels. Throughout the use of canonical stepwise discriminant analyses, they established that the percentage of beginning teachers was the school characteristic that most strongly differentiated charter schools from non-charter schools at elementary, middle, and high school levels in Texas. Moreno and Slate (2016) established that charter schools were more likely to have a higher percent of beginning teachers and Black student enrollment at the elementary and middle school level than non-charter schools. Moreover, they documented the presence of a higher percent of beginning teachers and a higher student mobility rate at charter high schools than at traditional high schools.

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The U.S. Department of Education (2006) emphasized that a highly-qualified teacher is one of the most important factors in student achievement. Under the No Child Left Behind Act, Title I schools are required to notify parents when their children are served by a teacher who is not highly qualified for a period of four or more consecutive weeks. In the State of Texas, teachers can be labeled as highly-qualified after passing a test and obtaining a college degree in the teaching subject (Darling-Hammond & Berry, 2006).Highly-qualified teachers have a greater influence on the academic achievement of students who are determined to be at-risk, than they do for average students (Phillips, 2010).Unfortunately, students with greater needs such as students in poverty and students of color are more likely to be served by under-qualified teachers (Darling-Hammond & Berry, 2006) and are more likely to have a higher teacher turnover, more novice teachers, and more inexperienced teachers (Hanushek & Rivkin, 2010).

II. Statement of the Problem

Charter schools are expanding in Texas at an accelerated rate. Under the No Child Left Behind Act, improving the quality of teachers is necessary to close the achievement gaps. Despite the importance of having highly qualified teachers who may better prepare students in the classrooms, however, Texas is one of three states that does not require teacher certification in charter schools (Maloney & McKenzie-Thompson, 2013).Under Texas law, a high school diploma is sufficient to teach in an open-enrollment charter school, unless the teacher has been assigned to teach for a bilingual or special education program. In those instances, the certification is required (Texas Education Agency, 2013).Yet, the highly-qualified term, as defined by No Child Left Behind Act, also applies to charter school teachers. Despite their popularity, student academic performance at charter schools is not better than their counterpart, traditional public schools (Penning & Slate, 2011).

a) Significance of the Study

By providing comparison data on the characteristics of teachers who are employed at charter elementary schools and traditional public elementary schools, results may be used by educational leaders to analyze the effects of teacher characteristics on student academic achievement. The results can also provide information regarding the presence of trends in the hiring process of charter elementary schools and traditional public elementary schools. Results from this study may also provide information to parents when deciding where to enroll their children. Parents who are interested in having classroom teachers with experience, due to the relationship of teacher experience to student academic success, may find the results of this investigation to be of value.

b) Purpose of the Study

The purpose of this study was to determine whether differences were present in teacher characteristics between charter elementary schools and traditional public elementary schools in Texas. A secondary purpose was to analyze possible trends in teacher characteristics that could define if a school was either charter elementary or traditional public elementary school.

c) Research Question

The following research question was addressed in this study: To what degree can charter elementary schools be differentiated from traditional public elementary schools as a function of teacher characteristics?

III. Method

a) Participants

Participants in this study were teachers in charter elementary schools and traditional public elementary schools in Texas. The dataset was downloaded from the Texas Education Agency Academic Performance Report website. Of the 4,629 campuses on which data were analyzed in this study, 259 were charter schools and 4,370 were traditional public schools.

b) Instrumentation and Procedures

Data were obtained from the 2015 Texas Academic Performance Report database, and then imported into the Statistical Package for Social Sciences (SPSS) software program. The school type (i.e., charter elementary schools and traditional public elementary schools) was the grouping variable, and teacher characteristics (i.e., base salary average, tenure average, experience average, beginning teachers, teachers with no degree, teachers with bachelor's degree, teachers with master's degree, teachers with doctoral degree, Black teachers, Hispanic teachers, male teachers, and female teachers) represented the discriminant variables.

c) Definition of Terms

The focus of this study was to determine whether teacher characteristics were different between charter elementary schools and traditional public elementary schools. *Charter school s*operate with freedom from many of the local and state regulations that apply to traditional public schools. *Traditional Public Schools* are schools that follow state guidelines, operate with the help of tax dollars, and are divided into grades and governed by school districts. Per the Texas Education Agency (2013), *highly qualified teachers* are required to have a full Texas teacher certification, hold a minimum of a bachelor's degree, and demonstrate competency on the academic subjects the teacher teaches. A *beginning* teacher is a teacher who has

been teaching less than three years (U. S. Department of Education, 2004).

IV. Results

Prior to conducting a canonical discriminant analysis procedure, its underlying assumptions were checked. Regarding the standardized skewness coefficients (i.e., the skewness value divided by its standard error) and the standardized kurtosis coefficients (i.e., the kurtosis value divided by its standard error), 43 of the 48 coefficients were not within the range of normality, + / -3 (Onwuegbuzie & Daniel, 2002).Tolerance values were also examined and all were determined to be within the appropriate range. Readers are directed to Table 1 for the descriptive statistics on teacher characteristics in charter elementary schools and to Table 2 for the descriptive statistics for teacher characteristics intraditional public elementary schools.

Table 1: Descriptive Statistics on Teacher Characteristics of Charter Elementary Schools

Teacher Characteristic	M	SD
Total Base Salary Average	$43,096.06	$6,334.68
Tenure Average	1.82	1.34
Experience Average	4.14	2.99
Beginning Teachers	28.18%	25.86
Teachers with No Degree	2.98%	8.16
Teachers with Bachelor's Degree	80.62%	13.83
Teachers with Master's Degree	15.69%	12.00
Teachers with Doctoral Degree	0.71%	2.61
BlackTeachers	25.30%	30.94
Hispanic Teachers	28.00%	30.71
Male Teachers	15.13%	10.98
Female Teachers	84.87%	10.98

Note: The sample size for charter schools was 259.

Table 2: Descriptive Statistics on Teacher Characteristics of Traditional Public Elementary Schools

Teacher Characteristic	M	SD
Total Base Salary Average	$49,959.14	$4,628.82
Tenure Average	8.27	2.64
Experience Average	11.38	2.78
Beginning Teachers	7.08%	6.95
Teachers with No Degree	0.36%	1.44
Teachers with Bachelor's Degree	79.56%	10.84
Teachers with Master's Degree	19.81%	10.66
Teachers with Doctoral Degree	0.27%	0.94
BlackTeachers	7.72%	14.49
Hispanic Teachers	29.56%	30.04
Male Teachers	8.64%	7.21
Female Teachers	91.36%	7.21

Note: The sample size for traditional public schools was 4,370.

To determine whether charter elementary schools could be differentiated from traditional public elementary schools as a function of their teacher characteristics (i.e., total base salary average, tenure average, experience average, beginning full time, teachers with no degree, teachers with bachelor's degree, teachers with master's degree, teachers with PH degree, Black teachers, Hispanic teachers, male teachers, and female teachers), a stepwise canonical discriminant analysis was conducted. The canonical discriminant analysis involved school type as the grouping variable (i.e., charter elementary school and traditional public elementary school) and the 12 teacher characteristics as discriminant variables. The function that resulted from the discriminant analysis was statistically significant, $\chi^2(9) = 2224.69$, $p < .001$, and accounted for 38.19% of the variance between the groups (canonical $R = .62$; Wilks' $\Lambda = .62$). This discriminant function included nine variables: beginning full time percent (Standardized Coefficient = .35), Black teachers (Standardized Coefficient = .20),teachers with no degree (Standardized Coefficient = .20), male teachers (Standardized Coefficient = .17), Hispanic teachers (Standardized Coefficient = .06), teachers with a PH degree (Standardized Coefficient =.06), teacher tenure average (Standardized Coefficient = -.39),

teacher total base salary (Standardized Coefficient = -.37), and teacher experience average (Standardized Coefficient = -.20).Readers are referred to Table 3 for these standardized coefficients.

Table 3: Standardized Canonical Discriminant Coefficients by Teacher Characteristics for Texas Elementary Schools

Teacher Characteristic	Coefficient
Tenure Average	-.39
Total Base Salary	-.37
Beginning Teachers	.35
Black Teachers	.20
Teachers with No Degree	.20
Experience Average	-.20
Male Teachers	.17
Hispanic Teachers	.06

An examination of the standardized coefficients for these variables, using a cutoff coefficient of 0.3 (Lambert & Durand, 1975), three teacher characteristics contributed most to the canonical function, with the characteristic of beginning teachers making the most important contribution (.35). The teacher characteristics of beginning teachers, Black teachers, and teachers with no degree were statistically significant and contributed most to group separation. Group centroids were 3.23 for charter schools and -0.19 for traditional public elementary schools, representing a separation of 3.42 *SD* units. Positive standardized coefficients were interpreted to mean that charter elementary schools were more likely to have a higher percent of beginning teachers, Black teachers, and teachers with no degree than traditional public elementary schools.

V. Discussion

The number of charter schools has increased and continues to increase in the United States. In Texas, the student enrollment at charter schools has increased by over 244% since they were approved by the Texas legislature in 1995. Despite their growth and increased popularity, the academic performance of students enrolled in charter schools is not better than the academic performance of students enrolled in traditional public schools (Penning & Slate, 2011).In this study, the degree to which charter elementary schools and traditional public elementary schools differed with respect to their teachers was examined. A canonical stepwise discriminant analysis revealed that the percentage of beginning teachers, the percentage of Black teachers, and the percentage of teachers who did not have a college degree were the teacher characteristics that most contributed to differentiate charter elementary schools from traditional public elementary schools.

Charter schools had a higher percentage of beginning teachers, a higher percentage of Black teachers, and a higher percentage of teachers who did not have a college degree than traditional public schools. Examining the descriptive statistics for these variables revealed that beginning teachers comprised 28% of the teachers employed at charter elementary schools compared to only 7% of the teachers employed at non-charter elementary schools being beginning teachers. Readers should note that these percentages reflect that charter elementary schools had four times the rate of beginning teachers than did non-charter elementary schools. Black teachers constituted 25% of the teachers employed at charter elementary schools compared to 8% of the teachers being Black teachers at non-charter elementary schools. With respect to not having a college degree, 3% of the teachers at charter elementary schools did not have a college degree, compared to no teachers at non-charter elementary schools who did not have a college degree.

The results of this study were consistent with the results of Moreno and Slate (2016), who documented that the percentage of beginning teachers was the school characteristic that most strongly discriminated charter from non-charter schools at elementary, middle, and high school levels in Texas. Moreno and Slate (2016) established that charter schools had statistically significantly higher percentages of beginning teachers than did traditional public schools at the elementary school level, at the middle school level, and at the high school level. Teachers are more effective with 3 or more years of experience (Darling-Hammond, 2009). Conversely, inexperienced teachers have a negative effect on student achievement (Darling-Hammond, 2010). By increasing teacher retention, school districts improve their productivity reducing student failure and the need of remediation programs (Darling-Hammond, 2009). The creation of incentives to attract highly-qualified teachers to schools with higher needs, and the implementation of effective support systems to improve the retention of new teachers, are some of the strategies suggested by Darling-Hammond and Berry (2006) to alleviate the problem of under-qualified teachers in high-priority schools.

Charter schools have the same accountability standards as traditional public schools, however, as noted earlier, they do not receive the same funding as public schools. This funding issue represents one of their biggest challenges in competing to retain

experienced teachers who would rather transfer to traditional public schools seeking better salaries and resources. Another challenge faced by charter schools is the need for highly qualified teachers who can better serve the high number of Black and Hispanic students, and students in poverty, whom they have.

Although charter schools serve a higher number of minority students than traditional public schools, under Texas state laws, a high school diploma is sufficient to teach in an open enrollment charter school unless teaching in a bilingual or a special program where a teaching certification is required. As revealed in this study, charter elementary schools were more likely to have beginning teachers and teachers without a college degree. These teacher characteristics are not in alignment with the No Child Left Behind Act recommendations of having highly qualified teachers to reduce academic gaps between minority and nonminority students.

VI. Conclusion

Further studies should be recommended in regard to student characteristics that would help differentiate charter elementary schools from traditional public elementary schools. Lest readers over generalize from these results, several cautions are in order. First, this study was limited to state level data on charter elementary schools and traditional public elementary schools in Texas. Although the results obtained here were congruent with prior studies that charter schools have a higher percentage of beginning teachers, readers are urged to be cautious in any generalizations they make from this study.

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Study on Sports Industrial Share Economy in the Era 'Internet Plus'

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Abstract- "Internet +" and "sharing economy" as a cutting edge, the hottest in the two kinds of development model, for the development of Chinese sports industry is relatively stable, progress and breakthrough in terms of the status quo of small, is undoubtedly a good opportunity. Combining both advantages, seize the opportunity to improve the process of sports development, China is now the key to the development of Chinese sports. This article is based on "Internet +", "sharing economy" and the relationship of sports industry, construct a new framework for the development of sports industry. First of all, from the perspective of the relationship between, it is pointed out that making full use of taobao, pay treasure, all kinds of online payment platform, weibo, We Chat, sohu and other micro culture, build Internet + sports apparel, sports services, sports fitness equipment, sporting events, such as development pattern, can trigger the birth of the new energy, new power sports development.

Keywords: internet +; sharing economy; sports industry.

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Study on Sports Industrial Share Economy in the Era 'Internet Plus'

Qian Yang [α], Ying Liu [σ], Xiping Yin [ρ], Huaping Wang [ω], Miao Guo [¥] & Bing Zhang [§]

Abstract- "Internet +" and "sharing economy" as a cutting edge, the hottest in the two kinds of development model, for the development of Chinese sports industry is relatively stable, progress and breakthrough in terms of the status quo of small, is undoubtedly a good opportunity. Combining both advantages, seize the opportunity to improve the process of sports development, China is now the key to the development of Chinese sports. This article is based on "Internet +", "sharing economy" and the relationship of sports industry, construct a new framework for the development of sports industry. First of all, from the perspective of the relationship between, it is pointed out that making full use of taobao, pay treasure, all kinds of online payment platform, weibo, We Chat, sohu and other micro culture, build Internet + sports apparel, sports services, sports fitness equipment, sporting events, such as development pattern, can trigger the birth of the new energy, new power sports development; And "the integration of sharing economy", make the sports industry development from product research and development, through product sales to consumers' hands, and realize the sharing between different brand, to avoid the development gap, because of the competition for the present development of Chinese sports to create a new development environment, finally achieve common development of sports industry whole industry, comprehensively promotes the prosperity of.

Keywords: *internet +; sharing economy; sports industry.*

I. Introduction

The development of China's sports industry has been in a relatively stable state, no major progress and breakthrough, the traditional development mode, in today's rapid economic development, the development model will be eliminated by the society. Right now, "Internet +" and "sharing economy" is a very frontier development pattern, in order to promote the development of China's sports better, faster, must be considered when building a new development model to the two development model. There are many for the "Internet +" study [1]. Zheng Zhilai first talk about the commercial bank profits in the application of this concept, and its application is analyzed emphatically from the Angle of retailing, pointed out that in the development of financial industry, the expanded the business scope of the participation of the Internet, make consumers from more channels to understand commercial products [2,3]. What teacher yuan, from the perspective of the real economy, analyzes in the development of the real economy, the relationship between finance and network size, pointed out that in order to adapt to the pace of global economic development, the two are inseparable [4,5]. The root of education is the power, rich countries. Development must take up the education. Wang Zhu instant people pointed out that "Internet +" is a breakthrough in the education reform, and from the application of smart phones, puts forward the development of education teaching is a kind of new ideas, new methods and new approaches [6,7].

Sharing has a certain economic development history, Zhang Xiaode and others point out that the economic development model for human life, as well as the progress of the whole society is a major reform, if hold good will to create greater wealth for China's economic development. Abroad early rise of the economic development model, Wang Zhen pointed out that China's economic development process, share consciousness is not strong enough, sharing economy is not mature enough, but this model is relatively mature in foreign countries, there are a lot of countries have implemented the share system, had to share ideas, to the development of China's economy will have to draw lessons from foreign advanced ideas, combined with national conditions, development suited to China's national conditions to share economic system [8]. Aiming at the development of undertakings of physical culture and sports, from the "Internet +" and "share of the economy" two aspects, establish a new framework, sports career development provides a new direction for the development of Chinese sports.

II. The New Development Model of Sports

a) *Internet + and sports development*

With the development of social economy, the Internet has become a link connecting relationship. The generation of network will be linked to the social from all walks of life, become a net. For the development of social economy, the progress of human civilization has

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played a certain role in promoting. For the "Internet +" is the concept of age after the 12th National People's Congress proposed a new word, new concept, breaking the traditional understanding of the Internet, at the same time also strengthened the Internet links between the industries. At present, big data, cloud computing has gradually penetrated into all walks of life, the Internet, the Internet of things, such as network industry, to breakthrough development bottleneck, to another new height of development, not only behind closed doors, must unite, learn the advanced computer technology (big data and cloud computing, etc.), draw lessons from its advantages, improve their own development, so as to achieve the goal of all-round development.

In addition, this concept applies not only to the network group, at the same time can also be applied to the modern manufacturing, industrial, agricultural development, develop industry and agriculture, manufacturing, services platform extension to the network, extensive network platform, the development of online goods, finally realize the all-round development of product online, offline.

Sports goods and services is one of the traditional industry, at present, for the development of sports has been in a relatively stable state, there is no greater progress and breakthrough, in today's rapid economic development, the development speed will be eliminated by the society. To this end, to the comprehensive development of sports for sports development to build a new development of ecological environment, "Internet +" provides a new opportunity for the development of sports, we must seize this opportunity to create new sports development pattern.

Contemporary society is a society, the Internet shopping on taobao, we pay by pay treasure, net silver shield, tracking logistics information, etc., via the Internet and microblogging, We Chat, sohu and other micro culture, new rise drops a taxi, a taxi fasts all the rage, provides a great convenience to our lives. The development trend of signal, no matter what kind of products, as long as with the Internet connection is established, its development will certainly have a lot of ascension. Thus, the new Internet industry pattern of the development of traditional industry and mutual assistance, is to adapt to the new social development mode, and the upgrading of traditional industries, stimulate the vitality of traditional industry development, the birth of the new forces, has inestimable influence.

In view of the sports industry, with the Internet a good fit together, which is the rise of Tmall, jingdong shopping platform, is a very good channel. Put the sports goods in online shopping platform, make consumers through the Internet to carry on the sports consumption, can largely promote the sports consumption of the product. That, at present has achieved, but the Internet is not a lot of sports goods, focused on the common sports platform such as Nike, adidas, li ning, and clothes, shoes, bag type of apparel consumer goods, sports fitness, sports equipment kind of goods while also online sales platform, but has not been widely accepted by people, this will require a physical server to do this kind of commodity after-sales service, the consumer feedback timely processing of information, guarantee the authenticity of the goods, for the vast number of consumers to provide a safe and comfortable shopping environment, so as to make full use of the Internet network platform, to build new sports goods online shopping platform.

Thus, the new normal, under the new trend of the social situation in, to this picture perfect on China's economic development, we must coordinate the relationship between the traditional industries and the Internet, organic combine the two, let everybody can entrepreneurship, everyone drives innovation from a development trend has become a normal development, development inevitably. Only in this way can we achieve the rapid development of China's economy, can achieve the goal of surpass international economy, to have the more stable status in the international, enhance China's comprehensive national strength.

Although said the Internet - to achieve the common development of traditional industry is a kind of inevitable trend, but the first thing must be clear, this new development model will not completely replace, also will not overturn the traditional industry development pattern, more is not negative, just in order to meet the needs of the development of modern society, proposed a new development model. This kind of development model combines the advantages of the original development model, to encourage industry and traditional industry and the mutual assistance and common development of the industry, motivate the development of traditional industry, the source of innovation, provide new development opportunity for the development of traditional industry.

The same is true to the development of sports industry. Will be moved to the Internet, sports goods consumption channels are not denied the original entity shop consumption patterns, but widen the channel of the consumer. We can select suitable sports goods through online shopping platform, never leave home can buy their favorite things. Also can through the online sports fitness platform, realize the reservation, select the appropriate time, to avoid the hassles of queuing, save the time. All aspects from the food and clothing live line, implements the sports consumption, which fully shows the arrival of the era of "Internet +" for our life brought great convenience, fully embodies the its advantages.

In today's network development, must support "Internet +" plan, only in this way can achieve various industries balanced, steady progress, reduce the gap between the industry development. As the saying goes, flowers, the same can be said, "Internet +" is not only to achieve "Internet +" and the traditional industry of

mutual aid, at the same time, it must improve its relationship with the first and second industry, the formation of the new situation of the industry "Internet +", promote the industry's development and progress. This is we support the ultimate goal of "Internet +".

But at the same time, also will derive some unsafe factors, there will be a lot of criminals "gaming", taken advantage of the diddle consumer interest, consumer fraud, this needs us in developing "Internet +" consumer rights and interests safeguard service at the same time. In sports consumption, for example, the Internet has spawned a lot of fake brand of sports goods, and wild speculations, for network virtual barrier, cheat consumers from product quality, price, this not only reduces the credibility of sports goods, at the same time, it is not a long-term solution, money is certainly faces collapse.

Above all, for the "Internet +" this kind of new things, we must take an entirely new state and full of enthusiasm to meet, at the same time ready to maintain their own rights and interests, and to ensure the safety of its own, moment supervision, merchants and promote the successful transformation of the enterprise, comprehensively implement the innovation, the development of new trend.

b) "Sharing economy" relationship with the development of sports

As the name implies, "sharing" is the meaning of sharing, resource sharing is a general concept, through resource sharing can be achieved and the development, and the progress, and promote the purpose. In many industries, has formed the resources, the sharing of data, but the share is still not fully implemented.

Share the economics has been as a discipline into the subject construction. It has its own history, it is the continuous development of the economic process gradually explored, by sharing, to achieve optimization, to maximize the economic benefits of the. Establish sharing economic system is a new way of economic development, a new direction.

Sharing economy in economic products, economic industry chain services, economic data resources, economic capability, talent training, talent sharing, establish a comprehensive system of Shared economy, from product development, production, sales and after sales, to product research and development team construction, to develop, expand, set up a series of substructure of sharing platform.

In view of the sports industry, sports industry to achieve the economic structure of sharing, sharing system construction of sports industry, also want to follow the principle of sharing economic system built from product research and development, the first to realize resource sharing between different brands of sports products, then sold on the market in the process of the sales way of sharing between different brands, ultimately to achieve the sharing of sports commodity prices to avoid competition on wild speculations, optional bounty phenomenon. Only in this way can promote the sports product sales, to maximize interests. But this kind of sharing economy is based on sharing between individuals on the basis of mutual trust, the biggest drawback is the way with the illegal use of share to steal the interests of others, are your own. It threatens not only the overall development of the economic system, and will cause panic among economic consumption. Thus, under the share economic system, the security service system must be in place to maintain share resource security, including the enterprise data information, such as consumer information. This requires that each individual share of the economy has extremely high engagement and safety consciousness, can fully trust each other, not the idea of cockiness.

As early as in the agricultural society formed, sharing economy existed, has deep roots. In Britain's iron and steel enterprises, the part of the company, part of the Japanese manufacturers also uses the sharing mechanism, is the economic system in China is not very mature. But with the development of economy, the requirements for the increase of the points to economic system will gradually become a trend. Because, only the development of the economy as a whole system to promote the development of the national economy, is not only a company, industry developed, the whole national economy will improve, the industry's overall progress to represent economic progress and economic development in the existence of "the gap between rich and poor" not conducive to the development of economy, is a kind of phenomenon must be avoided.

In a share in the economic construction of sports industry, also must pay attention to avoid the existence of the economic development gap between different industries, close the gap and achieve the goal of common development, mutual between the sports industries, steady development. This is the sports the most ideal state of economic development.

c) Construction of sports new development pattern

Based on the "Internet +" and "sharing economy", to create a new mode of development of sports is the new development direction of the sports industry at present. "Internet +" is one of the most preface development plan, and "share economy" is a kind of advanced development pattern, therefore in both, on the basis of building a new sports development framework is the most accord with the present development of a model.

On the basis of both, give full play to the advantages of both, to build a new framework for the development of sports industry, the sports brand between + sports apparel, Internet + Internet services, Internet + sports fitness equipment, Internet + sports

event, from the "research and development products - sales - after-sales" a different link to realize sharing of industry chain. The framework reflects the Chinese sports undertakings and "Internet +" and "sharing economy" with the combination of a new kind of development model.

III. Conclusion

With the development of social economy and the Internet into people's lives, to achieve development opportunities, follow in the footsteps of the global economic development, must be connected to the Internet. The hottest "Internet +", this article is based on the present and the cutting edge of concept - "sharing economy", to build a new framework for the development of sports industry, for the present development of Chinese sports to create a new development environment, promote the development of Chinese sports better, faster. First of all, in detail elaborated the development of sports industry in the era of "Internet +", and the close ties between the two. Sports goods and services is one of the traditional industry, "Internet +" is put forward for the development of sports provide a new opportunity, make full use of the taobao, pay treasure, all kinds of online payment platform, weibo, We Chat, sohu and other micro culture, build Internet + sports apparel, sports services, sports fitness equipment, sporting events, such as development model, which will become a new model of the sports development. The new Internet - sports industry mode of mutual development, stimulate the development of sports activity, the birth of the new forces, has inestimable influence. Secondly, this paper expounds the "share of the economy" contact sports. Pointed out from the product research and development, realize resource sharing between different sports brand, and sold on the market in the process of the sales way of sharing between different brands, ultimately to achieve the sharing of sports commodity prices to avoid price difference because of the competition. Finally, on the basis of both, give full play to the advantages of both, to build a new framework for the development of sports industry, the sports brand between + sports apparel, Internet + Internet services, Internet + sports fitness equipment, Internet + sports event, from the "research and development products - sales - after-sales" a different link to realize sharing of industry chain, finally achieve common development of sports industry whole industry, comprehensively promotes the prosperity.

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Pressurized Domestic Hydraulic System, Producer of Hydroelectric Energy

By Luigi Antonio Pezone

Abstract- The invention of pump with dual supply until to the impeller has allowed developing different ways to produce hydroelectric energy with water recycling. But those which guarantee the best performance with reduced dimensions are those which use pressurized water tanks with compressed air. In fact, in the case of a hydraulic system with pressurized autoclave (1), we can not use the energy of the water surface position of an open basin, which produces kinetic energy in the descending pipe which feeds the pump and turbine, but we can exploit the compressed air pressure that pushes the pressurized water directly in a turbine or a pump used as a turbine (2) and discharging in a reservoir at atmospheric pressure (3). In this case, we exploit the pressure drop and the flow rate through the turbine, while the pump with double separate supply until to the impeller, immediately re-inserting the water in the pressurized tank (1), from the suction side of one of the two feeding inlets , and by recycling simultaneously with the other feed the pressurized water inside the tank, allows to maintain constant the water level, saving the energy that would be necessary for the restoration of the pressure of the air cushion, and that to win the hydrostatic pressure, consuming only the energy required for water circulation within the accumulated volume of water.

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I. Description

In the introduction of any patent filing is standard practice to cite the state of the sector concerned. But in this case there is not much to say because the hydroelectric pressurized does not exist. This is the real situation, which penalized the environment and the world economy, since it is a clean energy system, not bulky economic, which has the capacity of continuous production, and greatly superior to the existing energy yields.

In this system it is important above all the combined use of the compressed air and the modified pumps to circumvent the pressure of the air cushion in the phase of recovery of the water, exploiting instead the same pressure at the outlet of the tank, saving and producing energy.

In fact, the current autoclaves used in water systems only reduce the phenomena of unsteady flow perturbations and the number of starts of the electric pumps, avoiding overheating of the motors. Now the autoclaves are inserted in parallel to the normal water flow, while the air cushion, expanding and compressing, allows the entry and exit of water, reducing the pressure peaks and providing water to the network for compensating for small pressure drops through the same outlet hole.

In pressurized hydroelectric, instead, we exploit otherwise the physical principles of water and air, because the pressurized tank is inserted in series in the water flow, which is one-way. The water enters at the bottom of the pressurized and exits laterally while the air cushion tank exerts pressure on the water surface but does not let expand, since the studied circuit is designed so that the water that enters is perfectly equal to that coming out. In fact it is much cheaper to circulate the incompressible water to keep constant the pressure that allow expansion of the volume of air and then compress it again, creating a discontinuous and with low performance system. On the other hand also the atmospheric pressure is a pressure that acts on all the water surfaces of the planet without expanding. but its effects are felt on the physical, chemical and biological. Atmospheric disturbances that occur within the atmosphere produce disasters and global well-being. Instead, the pressurized hydropower, when it is understood, will represent one of the most important inventions of man and economically sustainable, only creating overall wellness, but locally producing chemical and biological effects that contribute to the depuration and as we shall see, even the reduction of CO2 from the atmosphere, counterbalancing the disasters produced by the thermal energy.

This invention, as some previous inventions of the subscribed, related to energy production with recycling water, it would not be possible without the invention of the pumps with double separate power supply until to the impeller, which as shown in Fig. 1 and 2, allows to circumvent the hydrostatic pressure of the pressurized tank dividing the water flow at the pump inlet in two or four sectors kept separate until the entry of the pump impeller. These sectors, are separately fed with water taken from the pressurized tank and the water

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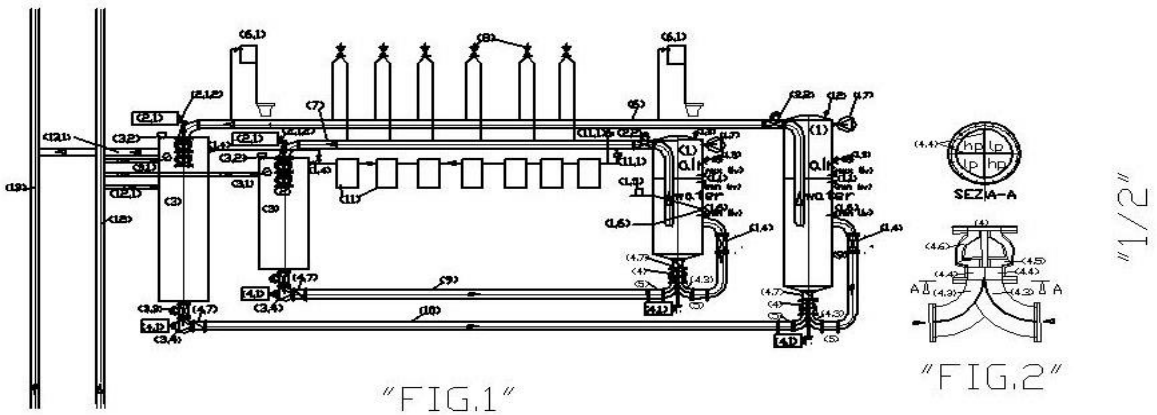
to be introduced in the same pressurized tank, so as to recycle about 50% of the total flow that circulates in the tank. Since the fixed power supplies, while the impeller is rotating, the same sector of the impeller is alternately fed with a stream having a different pressure and very similar flow rates, therefore, the flow of water with increased pressure pushes the impeller in the flow of water with pressure minor, which comes from outside the tank (1), while the rotation of the impeller, further increases the water pressure, overcoming the load losses in the pump, valves and special pieces that make up the circuit.

Substantially, in hydroelectric pressurized, the greater energy source is the compressed air cushion imprisoned above output water of the tank, that is consumed only minimally due to the laws of Dalton and Henry, while the water circulates with a very low prevalence of the pumps and with very little energy expenditure by electrical motors, due to the cooperation of the maximum hydrostatic pressure flow specifically carried on the suction side of the pump with the dual separate power supply until to the impeller, and due to the principle of Pascal, that allows the expansion of the total pressure in the body of the pump and the outlet there of.



"FIG.1" "FIG.2"

The Fig. 1 and 2 of the drawing 1/2, reported respectively the hydraulic scheme and the pump with the double separate power supply until to the impeller, the hydroelectric plant pressurized domestic, of which shows the legend:

(1) autoclave pressurized tank; (1.1) level regulator with capacitive probes; (1.2) safety valve; (1.3) manometer with shut-off valve; (1.4) motorized valve flow control with position transmitter; (1.5) pressure flow transmitter; (2) pump used as a turbine (pat); (2.1) alternating current generator; (2.1.2) coupling at an angle alternator turbine; (2.2) motorized valve to supply turbine with flow adjustment; (3) water transit tank at atmospheric pressure and containment pat; (3.1) motorized valve to feed pressurized water network; (3.2) motorized valve bypass supply at low pressure; (3.3) air valves; (3.4) feed electric pump in low pressure variable speed, driven by an inverter (4); electric dual supply pump on the suction side; (4.1) pump drive motor, with variable speed, controlled by an inverter; (4.2) joint pump motor coupling; (4.3) double curve with septa crossed separators in low pressure; (4.4) septa to flow separators; (4.5) closed impeller; (4.6) diffuser of the pump; (4.7 check valve; (5) flow diverter stub pipe; (6) cold water supply collector; (6.1) water supply to wc; (7) hot water supply collector; (8) hot and cold water mixer valve with its connections to the collectors (9) return collector of hot water; 10) return collector ofcold water; (11) heating and cooling House plant; (11.1) pressure regulator with shut-off valve and pressure gauge; (12) condominium water distribution network; (12.1) Additional cold water supply with solenoid valve; (13) piping of water collection and discharge in the low-enthalpy geothermal well; (13.1) overflow drain for water cooling in the geothermal well;

This system includes an electrical control panel with inverter for the regulation of flow of the electric pumps and of the adjustment of the degree of opening of the motorized valves as a function of the level control (1.1) of pressurized tanks and the gauge pressure of the air cushion and to connection with national energy operators for absorbing the energy of the departure station and the produced energy return.

As can be seen from Fig. 1, "pressurized domestic hydraulic system, producer of hydroelectric energy" is composed of two parallel hydraulic plants, very similar to each other, which replace the existing water and cold water distribution and hot and heating systems. But these systems, in addition to using the water for domestic use, produced by the pressurized circulation of the same, even the electricity that serves the entire apartment, making it independent from the electricity network, in fact, providing the public network the energy produced in excess, since more than three

KWh products for 24 hours a day and 365 days a year for all the housing will consume only a small part.

In fact, in the years 2008 - 2009, according to a report of ENEA, the average annual energy consumption of Italian families was 2442 KWh (http://kilowattene.enea.it/KiloWattene-consumi-fami glie .html), with an average of 0,278 kWh. However in order to cope with absorption peaks the maximum power used for each electricity meter is commonly been established in 3 KW.

This means that if all families would produce at home, in the plants in question the three KWh necessary absorption of three KW peak, over 90% of this energy would be used by the public network. Users, instead of being consumers of energy, would become producers of clean energy on behalf of the national energy managers, eliminating the existing thermal power plants that produce energy using fossil fuels and emitting CO2 into the environment.

To get technical details that describe the hydraulic systems that can produce this energy and environmental miracle, you need to see from the diagram in Fig. 1, that the two systems side by side, can be accommodated with the tanks on an outer wall of the apartment, with the outlet collectors (6 and 7) that enter inside the apartment, above the doors of rooms and return collectors (9 and 10) which remain outside the apartment, in the floor below the compartment of the door passage.

These two parallel installations are constituted essentially by a tank (1) pressurized with the compressed air produced by a compressor mini (1.7) and from the collectors (6 and 7) which by means of a motorized valve (2.2) feeding a hydraulic turbine (2) which discharges the water in a reservoir at atmospheric pressure (3), from which the water, by means a valve (3.3) a circulation pump (3.4) and the collectors (9 and 10) returns to the pump with the dual separate supply (4), that reintroduces in his own impeller, which recycles also at the same time the water of the pressurized tank (1). As can be seen from the figure, the apartment water utilities are fed by pressurized collectors (6 and 7) before these feed into the turbines. Since the flow rate of water required for production of energy is about five times higher water withdraw able from the utilities and by heating or conditioning systems, there is a small reduction of the energy produced by the turbines only during the levies.

As seen in the diagram, the load is supplied from condominium water supply (12) that connects to the float valves (3.1) of the atmospheric pressure tanks (3). It can be noticed that the tanks (3) also collect the hot water heating plant and the cold cooling water, which circulates in the summer period in the same radiant elements. In fact, to use this system, the water of the heating and cooling systems cannot circulate in a closed cycle, as in the existing systems, but is always renewed with the water of the condominium network (12). In particular, it can be noted that the tank of cold water recovery (3) is provided with an additional water supply (12.1) and the overflow drain (13.1) to increase the flow of water during such use. It 'well known fact, that the circulating water in a geothermal well exchanges heat with the subsoil that is located at a constant average temperature during the whole year (12 -15 oC).

We do not enter into the merits of the type of heating, and cooling that can be with radiators, fan coils, or with heated floor, but it is noted that the heating water temperature must be the same of domestic hot water, being the system in common. Therefore, the calculations of the heating elements must berealized in function of this temperature (approximately 50 °C). While, for cooling, which requires a higher water circulation, is possible to increase it by means of supplementary feeding with the solenoid valve (12.1) which renews the water in the cold water circuit, draining part from the overflow (13.1) of the tank (3), replacing it with cooler water raised by the low enthalpy geodetic well (drawing 2/2). In fact, in the well do pass the water that comes from the public aqueduct, which is raised to the condominium water network by means of a pressurized hydroelectric plant with water oxygenation, specially designed for wells, of which only for information, I describe later the drawing 2/2 with legend and description (being the object of another patent of the undersigned). This, to highlight that state of the art in the field of energy efficiency, management of water resources and water and air purification, can make a remarkable leap forward in all urban centers of the world, completely eliminating energy fossil with very low cost, without the clutter that requires solar energy, and eliminating the millions of external units of air conditioners, which help spread dust and heat the ambient of urban centers. In fact, the geothermal well, will play five functions: heat exchange with the subsoil, storage of drinking water, oxidation and lifting of the same and energy production, not taking the ground water, but the of the aqueduct. The water level in the well is always maintained at the nominal level through feeding from the public water network (18) of drawing 2/2, by means of a solenoid valve subservient to a minimum level probe. To increase the coefficient of heat exchange with the subsoil is advisable to realize the well with pipes coated in ceramic stoneware.

In hydraulic systems that produce energy inside the apartments, contrary to existing autoclave systems, pumps and turbines are always in operation (having to produce energy), while the variable speed motors and valves regulate the flow rate, if you want to adjust also the amount of energy produced. The electric pumps of low pressure circulation (3.4), feed the entrances of the left (looking at the drawing) of double pumps with

separate power supply until to the impeller (4), while the second entrances are directly fed with the maximum pressure of the pressurized tanks (1). The pressurization with compressed air is provided by a mini compressor (1.7), of the type used for the inflation of car wheels, These tiny compressors powered at 12 V c c, are sufficient, since very little compressed air that is consumed. The only differences between the hot and cold water system are the slightly higher volume of water to that in which circulates the cold water to cope with the increased daily water consumption. While in the pressurized tank in which circulates the hot water it is incorporated electrical resistance (1.6) for heating the water.

When occurs the levy of consumption of water through the mixers faucets of hot and cold water (8), the discharge of the toilet, etc., there is a level drop in the reservoirs (1 and 3), which is immediately restored by entering water in the supply circuit of the tanks (3), via the supply valve float (3.1) fromthe communal network (12). Come si può notare dallo schema, l'aria compressa è imprigionata nella zona superiore dei serbatoi pressurizzati (1), pertanto non può uscire dal serbatoio e non si consuma, a parte quella che si solubilizza nell'acqua per effetto della maggiore pressione nel serbatoio (4 bar) e che l'acqua libera nell'atmosfera quando è scaricata nel serbatoio (3), ma questo fenomeno è quantificabile in milligrammi di gas per litro di acqua (azoto, ossigeno, CO2) secondo la legge di Dalton di cui si riportano di seguito le formule principali che spiegano anche i concetti, senza entrare nel merito dei calcoli:

In a mixture of ideal gases contained in a volume V and the temperature T, the molecules of each gas molecules behave independently from the other gases; as a consequence of this is that the pressure exerted by the gaseous mixture on the walls of the container and on the water surface is given by:

$$p = \frac{RT}{V}\sum_i \eta_i$$

where, R is a constant that that is 0,0821; , … represent the number of moles of each component of the mixture. This law is valid under the conditions by which it is valid the ideal gas law is approximated at moderate pressures, but becomes more and more accurate as the pressure is lowered. By defining the molar fraction as the ratio between the number of moles of the ith component and the number $\sum \eta_i$

Total of moles present: $x_i = \frac{\eta_i^i}{\sum_i \eta_i}$

It is obtained that in a mixture of ideal gases, the partial pressure of each component is given by the total pressure multiplied by the mole fraction of that component:

$$p_i = \eta_i \frac{p}{\sum \eta} = r_i p \,.$$

According to Dalton's law, the sum of the corresponding partial pressures must be equal to atmospheric pressure (1 atm = 101.3 kPa) and in fact: Nitrogen: 79.014 kPa; Oxygen: 21.232 kPa; Carbon dioxide: 0.04 kPa; Argon: 0.8104 kPa; other gases: 0.2127 kPa. Total (air): 101.3 kPa.

The Henry's law says that at constant temperature, the solubility of a gas is directly proportional to the pressure that the gas exerts on the solution. Reached equilibrium, the liquid is defined saturated with the gas at that pressure. This state of equilibrium is maintained until when the external pressure of the gas will stay the same, otherwise, if it increases, more gas will enter into solution; if it decreases, the liquid will be in a situation of super saturation and the gas is freed back up to the outside when the pressures are again balanced. The speed, with which a gas enters or is free in solution, varies as a function of the difference of the pressures (external and internal) and is conditioned by its molecular composition and the nature of the solvent liquid.

To compare among them the solubility of gases in liquids, you may consider their absorption coefficient, which is the volume of gas at normal conditions (T = 20 ° C and p = 1 atm) and expressed in milliliters which was dissolved in a milliliter of liquid. In the table are reported the absorption coefficients in water of some gases at different temperatures at atmospheric pressure:

Gas	Temperature		
	0°C	20 °C	30 °C
helium	0.0094	0.009	0.0081
Nitrogen	0.0235	0.015	0.0134
Oxygen	0.0489	0.028	0.0261
Carbon dioxide	1.713	0.88	0.655

In order to understand the meaning of the data in the table, for example, consider the value of 0.028 corresponding to the coefficient of absorption of oxygen in water at 20 °C, at atmospheric pressure. This means that in a vessel containing water at 20 ° C, the gas phase above the liquid contains oxygen to the partial pressure of 1 atm, in a milliliter of water is dissolved O2 equal to a volume of 0.028 mL. In a pressurized tank with four bars, at the same temperature, this value must be multiplied approximately for four.

In essence, for each gas present in the air is possible to calculate what percentage is solubilized in water at the working pressure, but for practical purposes, the energy that will spend to compress the air will be a small expense, since the air compressed, not ever coming out from the volume of the tank (1) has only small pressure fluctuations, and once it reached the saturation point not dissolves more air. One that is consumed is due to the lower water solubilisation of the gas, at atmospheric pressure. In fact, when the water passes through the tank (3), provided with air vents, releases a small portion of air, which becomes insoluble to the atmospheric pressure, which comes through the vent (3.2). But, obviously, the transit times in this tank are very narrow and the complete air expulsion process can not occur, because, immediately go back into the water tank (1) where the gas can not escape from the surface of 'water, returning again to the maximum solubilization conditions.

However, irrespective looking energy, if we compare this system to the current hydraulic systems used in the apartments, we have to say:

- The oxygen which dissolves in the water improves the characteristics of purity and from the chemical and biological point of view do not form deposits and sludge in the tanks, being always the water in circulation.
- Allow for greater water saving, as with autonomous gas boilers and electrical heaters with normal bathrooms the hot water reaches the point of use (8) only after emptying the whole of cold water in the pipes, not existing in such installation the return pipe to the heater (9). While compared to the current distribution of condominium centralized hot water, which has the return pipe to the heated storage tank, the solution inside the apartment, has certainly less heat loss, having to travel a very short paths, obviously in tanks and coated pipes.

The current state of the art, this plant from the point of view of thermal hydraulics, can be compared only partially with implants made with solar thermal. But these can not produce the hot water needed in a building of many floors with many apartments, not existing surfaces required for the installation of solar panels.

Also from the point of view of energy production, you can compare very limited with photovoltaic panels, which produce electricity, but with lower yields and higher investment costs. Just think that to produce 3 KW / h required to only one apartment, on average, it takes about 30 m2 of surface, and it can produce only a few hours of the day.

In addition, solar energy can not do both things: either uses the energy absorbed from the sun to generate electricity or produce hot water, thus, a building with many apartments will never have enough surface to heat and conditioned all with a positive energy balance and cost.

From an economic standpoint, it was found that no renewable energy approaches the fossil energy yield burning a fuel directly, although this is lower (average 0.35 compared to the lower calorific value).

Although solar power is approaching the fossil energy costs, the necessary space, the discontinuity of energy production, does not allow it to deal with the pressurized water power that does not exist only because the current power producers, public and private, they do not pretend to understand it, but this energy is not based on secret formulas but logical reasoning and physical and scientific laws established for centuries. From energy calculations made by myself, which may vary only in according to the real yield of the machines, which have been hypothesized, having no possibility of making real prototypes, in small household systems the performance of such energy is ten times less than the fossil energy and in large installations with high flow rates of water, will also arrive at costs hundreds of times lower, since they decrease much the load losses in the water circulation.

In fact, today, hydropower is the only energy that far exceeds the efficiency of 100% compared to the energy expended, being produced with the water falling from the mountains, but this is a special case which cannot be repeated when the water that is in the top compared to the turbine is exhausted.

At least that was thought until did not occur the hydropower invention submerged, by the undersigned, who has shown that the famous "perpetual motion" is merely a special case in the atmospheric environment. In the aquatic environment, pressurized with the atmosphere or artificially in tanks, the perpetual motion also does not exist, but it is possible to multiply the energy spent getting an energy gain, until the motion, initiated by a pump continues over time. This multiplication of energy is accomplished by placing a pump submerged in the seabed upstream of a submerged turbine, and with the water from above intubation that feeds both. This solution does not allow the upper reservoir emptying and at the same time, feeds the turbine only by utilizing the kinetic energy that is produced in the descent tube due to the rotation of the pump. In fact, also in this case the energy produced by the turbine is much higher than that consumed by the pump, because it is increased by the force of gravity

and by the atmospheric pressure acting on the entire basin, but where the pump creates a vacuum in the seabed, produces a downhill water continuously flow like a gate that feeds the turbine was opened. Although this flow depends exclusively on the rotation of the pump, it does not mean that the turbine produces only the energy supplied by the pump. In fact, if there was not the turbine which slows the speed of the water, the water velocity in the descent tube and at the outlet would increase by gravitational acceleration effect ($\sqrt{2gh}$), without a fixed pump speed will be able to control it , rasformando in heat all the kinetic energy, due to friction with the walls of the descent tube and at the outlet ($V2 / g$).

It 'obvious that this energy exceeds the efficiency of 100% compared to the energy expended, without violating the principles of the conservation of energy. In essence those rules do not contemplate special cases that exploit the energy of surface water position that is automatically renewed because incompressibility of water, that in a basin always full occupies the same space even if you perform internal currents, one-way and only from the top down, as previously described. In fact, the kinetic and electrical energy production can not oppose the static pressure of the basin, present at the output of the turbine, and because this pressure is also present on the suction side of the pump, and then the static pressures are balanced, both because the exit the turbine there is an outlet in an open environment where the only opposition that can find water that comes out is that of static friction with the water molecules that is at the exit of the turbine calculated by the known formula $V2 / 2g$.

Consequently, to the pump is required little energy to move the ducted water from top to bottom and then put into turbine connected in series, that by limiting the output speed, turns all the kinetic energy into electricity. The energy produced is always higher than the energy expended to run the pump. Everything depends on the positive hydrostatic h intubated above the pump.

The concept above of submerged hydroelectric energy can also be transferred to non-submerged hydroelectric energy, if instead of intubating the water by the bottom gate of a reservoir, we intubate the surface water which is discharged from the overflow and we put in downstream of the descent tube a pump in series to a turbine which discharges the water into another tube, but with much larger section than the descent tube, connected to the bottom of the upper reservoir. Also in this case we produce hydroelectric energy using only the dynamic pressure, the static being in equilibrium, as described above, with all the effects induced by the acceleration gravity. Also in this case the water that comes out from the turbine, requires only an energy $V2 / 2g$ and having the same density as that which is located in the upper basin, does not need to be raised, since such circumstances, the upper reservoir is full and feeds the pump which in turn feeds the turbine, which discharges the water into the wide pipe section connected to the upper reservoir.

In fact, those who assert that the underground hydropower is against the principles of conservation of energy, does not know these principles, since this energy transforms into electricity that energy that is produced by the hydrostatic height h and acceleration of gravity g, which would be dispersed into heat because the energy is transformed, not destroyed. But it is clear that the energy submerged and always filled basins was never produced because to produce it were necessary four conditions which have to co-exist simultaneously and that no one has never thought to put together: atmospheric pressure on the surface, intubation from surface water, in series combination of a pump and a turbine, position of pump and turbine under hydrostatic height h. If miss one of these four elements, or stops the pump that breaks the hydrostatic equilibrium does not produce any energy. The reason is very simple: because, not being able to take advantage of the hydrostatic pressure of the reservoir, we use only a tiny fraction of water position energy specifically ducted and separated from the surrounding waters, creating a vacuum in the lower part, so that the water inside the hose could drop into the seabed due to the gravitational force and the atmospheric pressure, producing a kinetic energy much higher than that consumed by the pump that simply moves the water of a few centimeters down, triggering a kind of siphon that stops when the pump is stopped. This condition does not exist in nature and was not easy to intuition, therefore, it is evident that this energy would never come off without these arguments. But this reasoning, which for unknown reasons, no one has financed, have led to more reasoning even more efficient from an energy standpoint. Therefore, the progress of the state in the hydroelectric sector with the water recycling is due only to advance virtually. Probably, the professors who teach hydrology in universities around the world do not have the humility to admit that he had not made such reasoning, whose absence has affected the environment and world economic development. This is also necessary to say talking about the art of hydro generation was because the silence of the world's scientific authorities continue despite all the publications and patents filed later by myself. In fact, from the initial reasoning simply using a normal pump which pumps water into a turbine, it created another reasoning that allows to produce energy even while raising water from a lower reservoir to an upper reservoir, which has led to a new invention called "electric pump with double separate power supply until the impeller". ". Which it runs fed from two separate hydraulic circuits. In fact, we can produce energy in the turbine with the water that beat from the upper reservoir, which also in this case must be

kept always full, and collect the water that comes out from the turbine in tank placed in the low position, which feeds only one side of the pump with the dual separate power supply until to the impeller, while the other side continuously recycles the water of the upper reservoir. The essential condition for the functioning of the pump and related plants is that the two flows are hermetically separated until the entry into the impeller. In fact, being the feeds fixed and the flows very similar, they introduce in the same sector of the impeller in rotation, alternatively, the water that comes from the lower basin and that which is recycled from the upper reservoir. Consequently the water of the lower basin is inserted into the the recycling circuit of the upper reservoir, being unique the pump delivery. But since the volume of the upper reservoir is limited, the excess water exits from the overflow and feeds back the turbine in an infinite loop, until the pump runs, as in previous cases. With this new system, if we take from the overflow of the upper water basin for other uses we not excessively reduce the production of energy, being able to integrate with drawn from the lower basin water. Today the water lifting systems are very large energy absorbers and can not recycle the water producing energy in the turbines because the lifting without the pump with the double separate supply until to the impeller and the relative water recycling circuit which uses the pressure hydrostatic of the upper basin, it costs plus of energy produced by the turbine. Contrary hydropower submerged and with the total water recycling, the implants made with the pump having dual separate supply, produce energy only with the amount of water that is renewed entering by the feed opposite to recycling, but the advantage is considerable, since there are no limits to the height in which the water can be raised only spending the energy for the recycling of about twice the water flow that produces energy in the turbine. To realize the energy difference between a water recycling and a lift is enough to think that recycle 1000 L / s of water in a pipe Dn 800 one kilometer long, it requires the pump head of 1.5 m. It means that the water to move horizontally or recycle it in a closed circuit, without lifting it should be an energy about 666 times (1000 / 1.5) lower than lifting against the gravitational force. This ratio increases with larger pipes and decreases with small pipes, but also in domestic systems, that in this respect, are the most penalized, the ratio stood at values of a few dozen. But considering that we do not need fuel to produce this energy, being the main energy source of compressed air cushion, which acts as the atmospheric pressure in the artesian wells, but in a more powerful way because in domestic systems use a pressure about four times higher at patents filed later by myself. In fact, from the initial reasoning simply using a normal pump which pumps water into a turbine, it created another reasoning that allows to produce energy even while raising water from a lower reservoir to an upper reservoir, which has led to a new invention called "electric pump with double separate power supply until the impeller". ". Which it runs fed from two separate hydraulic circuits. 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wells, but in a more powerful way because in domestic systems use a pressure about four times higher atatmospheric pressure. Another important application filed as patent by myself, for this type of energy, as well as for home, house systems, is that concerning the replacement of heat engines on means of transport, simply placing side by side a pressurized tank with compressed air and a tank at atmospheric pressure. In fact, the water passes from the tank to the atmospheric pressure to the pressurized by means of the pump with the double separate supply until to the impeller, which in the meantime, through the second power, by recycling the water in the pressurized tank and balancing in the impeller in rotation the pressure of input and output also allows the entry of renewal water that enters in the impeller and consequently in the recycling circuit and in the pressurized tank, bypassing the pressure of the air cushion. Obviously, adjusting the flow rate of water through by motors with inverters and the degree of opening of the valves with stepper motors and position transmitters with signals in milliamps is possible to finely adjust the energy produced by the plants that use the compressed hydropower. This adjustment is very useful especially on means of transport where current heat engines need a much more complex, having to control the combustion parameters, the speed control of the motor, the filtration of the smoke and the temperature of the engine at the same time. Nearly 150 years of history of internal combustion engines have not yet solved especially environmental problems, but manufacturers have no desire to abandon the thermal and thermal power engines, which also serve to charge the cars powered by lithium batteries which is a material expensive and being depleted, while thriving solar energy and wind that have encumbrances, environmental impacts hundred times faster compressed hydroelectric energy. The so-called new energy that the world's environmental authorities are carrying out are discontinuous in energy production, require special materials, they also running low, and the cost per kWh produced is at least ten times higher than the cost of energy with 'compressed hydropower.

Another application, also filed as a patent, may be used for the protection of the environment submerging pressurized tanks in the waters subject to flooding. In fact, we can use the pressure of the air cushion to produce energy, both to defend the territory against flooding, simply by diverting the water outlet of the pressurized tank to the turbine, or to a specifically prepared area to accommodate flood waters. In fact, we must not forget that the air cushion can be up to 35 bar before the water, at environment temperature, becomes liquid. All this without counting that these plants produce energy while dissolved oxygen in the water contributes greatly to self purification. Obviously, in all systems, large and small, fixed and mobile, it must always be the pump with the separate supply to introduce water into the pressurized tank, without allowing the expansion of the air cushion, as occurs in the tanks at atmospheric pressure that discharging the water from the overflow. In fact, only the water that comes from the pressurized reservoir, similar to the overflow of an open reservoir, can be used to produce energy, or be raised for the defense of the territory, with an energy gain, while respecting the principles of conservation of energy

It is no coincidence that the "domestic pressurized hydraulic system, hydropower producer" was born in the end after studying ways to reduce the overall dimensions of the pressurized hydroelectric plants, both to let them in car trunks, both to let them in the cylinder of wells. In fact, the solution of the double-flanked tank, is nothing more than the solution used to realize hydroelectric engines compressed on means of transport but in this case the energy outputs from produce are lower and the adaptations are needed, such as the double system for water cold and hot, to distribute the water to the various users of consumption, distribution and thermal conditioning of the housing. While the studied system for lifting, oxygenate and produce energy in the wells, can be used without particular modifications to feed the water necessary to the individual apartments, or by integrating the energy production, both for exchanging the low enthalpy geothermal heat with the subsoil. This solution does not require fuel or solar energy, with the coupling between the internal system of the apartments and the inner to the geothermal wells, may even make acceptable living conditions to the north and south poles, where the polar night lasts six months. But for the moment it would be sufficient to eliminate the millions of outdoor units of air conditioners that with the exchangers air / currently contribute to global warming air, and reduce the proportion of CO2 from the environment simply by oxidizing domestic waste water and rainwater by means of artificial rain water in limestone greenhouses, was placed on urban purifying or nearby, as already proposed by me in previous patent deposits, as shown in Fig. 6 of the drawing 2/2. In fact, with the compressed hydroelectric as shown, we can produce energy even lifting the water, because the pressure of the air cushion easily overcomes differences in height of a few meters, while the pumps with double separate power supply we can retrieve all the waters' infinity, until it becomes alkaline, with energy costs amply compensated by pressurized hydroelectric production. So the demolition of CO2, SOx and dust present in the environment, which is deposited, especially in the urban atmosphere low-lying areas, it would not cost anything from an energy point of view. And 'only necessary modifications of existing purification plants, bringing them back where they produce pollution, because those who brought the cleaners out of the city walls has only created chemical biological and economic disasters. If the environmental authorities will dispense with opportunities to continue

using purification systems such as activated sludge, places outside the cities, after kilometer sewer degenerative pathways, it is not only environmental incompetence, but stubbornness to want at all costs, damage the environment, 'economy and the health of citizens.

From all the above considerations it is clear that hydropower pressurized with compressed air, is certainly the cleanest energy, efficient, economical, easy to manufacture, with a small footprint and the minimum investment. It summarizes the physical and hydraulic principles on which they are based:

In these systems, we exploit two different hydraulic systems: one in favor of energy production that exploits a physical force (compressed air) is not produced by the hydraulic system and one favorable to energy saving during water recovery, which bypasses this physical strength, exploiting the incompressibility of water, in the following way:

- At the entrance of the turbine exploits the dynamic water pressure caused by the air cushion, which would expand, but can not expand, because the pump simultaneously with the dual separate power supply until the impeller introduces, through the impeller in rotation, from the side extractor, the same amount of water that out of the tank;
- Entrance of the pressurized tank takes advantage of the fact that being in balance the pressures upstream and downstream of the impeller on a side of the pump, when this is in rotation, there being a clear separation of incoming flows arriving to the impeller, when this wheel entry permit in the same sector of the impeller, the first water that comes from the outside and then the one that comes from within and both streams are output in the direction of the pump inside the pressurized tank. Where the water finds no opposition, by the hydrostatic pressure existing in the tank, being an internal circulation to the accumulated volume, going simply and simultaneously to fill the void left by the water that comes out to feed turbine. It 'important to dwell on the fact that the water that comes out is replaced instantly by water which enters, for which the hydraulic system does not alert the entry of outside water to the inner one. Another important thing to keep in mind is the fact that the air cushion for any reason it has to expand, because being domestic installations and to wells with small volumes immediately make empty the air cushion, thus the valve that cuts down the turbine must be always closed and open only when the pump is in operation with the dual separate power supply (4), without which it would not be possible to circumvent the internal pressure of the container (1). But it is also important the way in which it feeds the pump, so that in the inlet section represented by the cross-section AA of Fig. 1, we have two or four separate streams in the high pressure (ha) and low pressure (lp), arranged diagonally if there are four, in order to balance the hydraulic pressures in the impeller and on the bearings. In order that this separation of the flows can take place is necessary to start from the flow diverting log (5) in that the double curve with separator baffles (4.5), must already receive the stream channeled into the correct position, so that (if they are four) can cross them as represented in section. A-A. Then, the half of the particular curves (4.5) using only half of the passage section, already arranged diagonally, that flow in only one input section of the pump already divided into four sectors until to the fins of the impeller. In fact, with this type of supply, when the impeller is rotating, receives in the same quarter section, water flows with the alternating sequence hp - lp, using the water thrust with higher pressure (hp) to push forward, the water with less pressure (lp). On the other hand this hydraulic principle is already used in multistage pumps, where the water retains its total dynamic pressure (flow rate * unit pressure * the passage section), and increases from stage to stage, entering the center of the impeller , exiting at the periphery of the same, and returning to the center of the next stage, to effect, in particular, of the strength of the total dynamic pressure that follows the path of the impeller blades (4.4) and the diffuser of the pump body (4.6), as evidenced, in enlarged detail of the pump (4) of fIG. 2. With the increase of the working pressures is also important to the accuracy of machining, which prevent leakage in the reverse direction to the flow. In fact, the multi-stage pumps also reach operating pressures in unique sense of hundred bars.

It 'difficult for the experts, especially for pump manufacturers, to admit that the pumps should have been designed to get the forces that oppose the lifting of the waters, as indeed is the case in the mechanical lifting. In fact no one raises mechanical lifting weights directly, but does so through many systems that reduce the effort (inclined planes, rolling friction, relationships belt drive, gear, etc.). Who knows how they work and how the pumps are built can not have doubts about whether the pumps with double separate power supply are functioning. It can vary only the performance of a type of impeller and the other, but this regards large plants with high flow rates and small heads. In domestic systems the choice of impeller is almost obligatory. It is single stage pumps with closed impeller. Therefore, it is worthwhile to turn the condominiums and individual apartments from absorbers to power producers, providing energy to the public sector and industry and completely eliminating fossil fuels.

For the construction characteristics of a pump with a double feed on the suction side, it is necessary that both feeding inlets are equipped with a positive

hydrostatic head. Therefore in the case of small plants, with little geodesic inlet height, as in Fig. 1 has been provided an additional pump with single supply (3.4), which slightly increases the dynamic pressure on the pump suction dual feed (4) from the side fed with water discharged from the turbine. Obviously, the pressure increase is also synchronized by means of the inverters connected to the control engines (4.1).

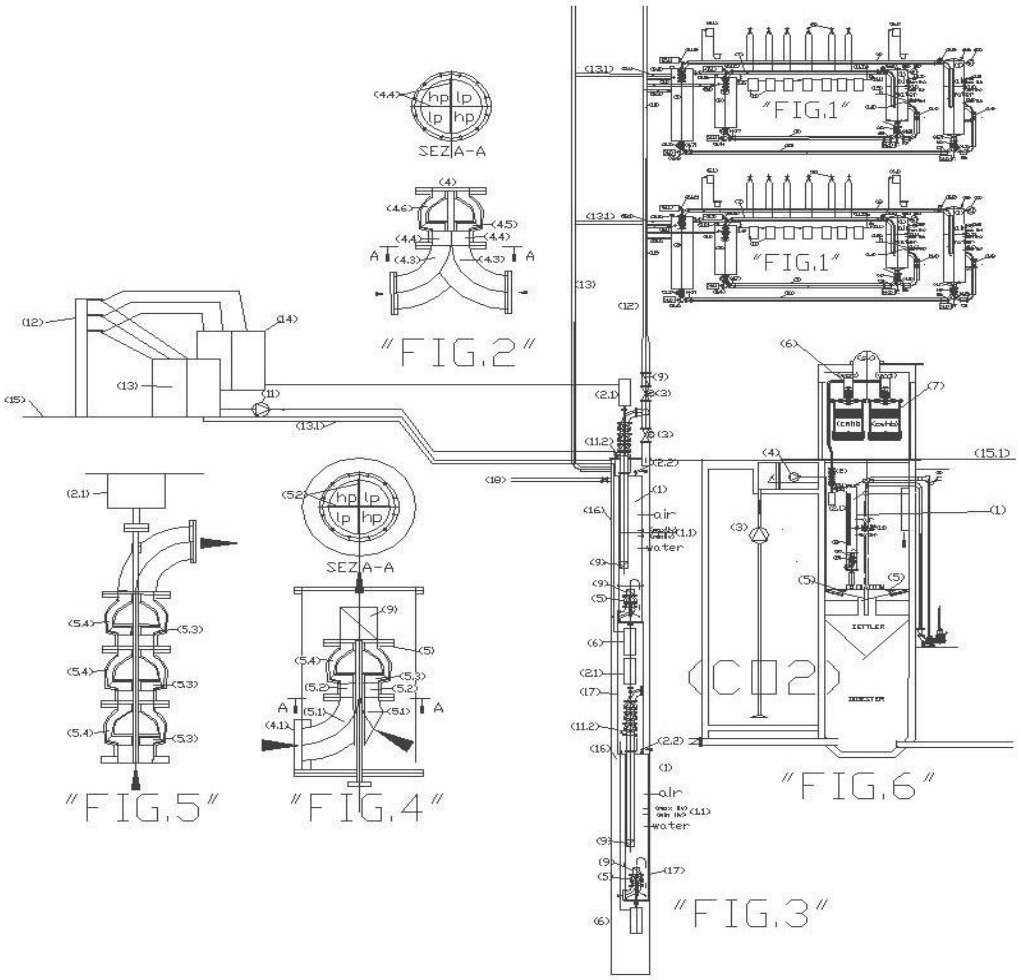
As can be seen from the schema Fig. 1, not all the water that goes in distribution collectors (6 and 7) passes through the turbine (2), producing energy. But that which passes through the turbine needs to discharge the water to atmospheric pressure. In fact, the momentary output of water from the pressurized circuit to the atmospheric pressure is needed to produce kinetic energy in the turbine atthe expense of the energy conferred by the compressed air pressure. But since the same amount of water, by means of pumps (3.4) and (4), the control valves (2.2 and 3.3), the level of replenishing (3.1) and the automatism of the control system, immediately falls in the tanks (1) without expanding the air cushion and lower the pressure, this plant continues energy production during the water outlet from the taps (8) and the supply of heating or cooling. In fact, in the system of hot water and the cold distribution, the simultaneous maintenance of constant levels of the two tanks (1 and 3), it does not involve energy costs to win the hydrostatic pressure, or to compress the air cushion, but only load losses for the circulation of water, under the accumulated volume of the two tanks. Obviously, if you exceed the capacities for which the plant was designed and levels (1.1) are not maintained, the pumps (3.4 and 4) must increase the number of revolutions to increase the scope and compress the air cushion that it is expanded.

Suppose we create a small domestic system produces energy by means of the two AC generators (2.1) coupled to two pumps used as turbines (pat), exploiting the useful height Hu = 40 m and a dual feed pump DN 65 with flow rate 7.5 L / s. Already by the size of the pump, the turbine and of the tubes, we realize that these systems are very different from the current domestic installations, which rarely exceed the DN 20 for the tubes and the water circulation pumps. But these dimensions are not to impress because water consumption is always the same, since water that produces energy in total recycling. Assuming the turbine efficiency is 0.6, applying the formula $Pu = \eta * 1000 * Q * Hu / 102$, we have an energy output of 1.76 kW (0.6 * 1000 * 0.0075 * 40/102). Assigning to the pump a prevalence of 0.5 m and a yield 0,6, the power absorbed by the same, which leads a double flow of that which passes into the turbine, calculated by the formula 0.5 * 1000 * 0.015 / 102 * 0, 6 = 0.122 KW. While the additional circulation pump (3.4), with a flow rate equal to half, suppository with the same yield and prevalence absorbs half of the energy calculated for the double feed pump (0.061 kW). In this case the ratio between the energy expenditure and yield is 9,61 (1,76 / 0, 183). The net energy produced between the two systems side by side is (1.76 to 0.183) * 2 = 3,154 kW, which may further increase by increasing the pressure of the air cushions or the revolutions of the motors driving the pumps.

If the relationship between energy expenditure and yield divide it by the average efficiency of thermal energy to have the relationship of convenience between the compressed hydropower and thermal energy that equals 27,45 (9,61 / 0, 35). If we add to this value the investment costs to achieve the thermal power plants, the costs for the transport of energy, the costs for the extraction of fuels subsoil, refining, transport, marketing, the depuration and also add you the missed benefits that brings the oxygen that dissolves in the water we use to produce energy, it is no exaggeration to say that the fossil energy is one hundred times less convenient of compressed hydropower that no one has ever thought of producing. This difference becomes even more evident in pressurized large hydroelectric plants, especially for the defense of the territory from high waters and floods. If these inventions were born before probably it would not be worth it to extract from underground fossil energy, since there is not much difference between a mobile hydroelectric power generator mounted on means of transport and those described in the plants in question. There would be even running to expensive renewable, discontinuous and not interactive with the environment. But these inventions arrived later and everyone pretends not to understand them in order not to collapse on the stock exchange of an industrial society and economic completely wrong.

As written above the average consumption of a household is less than 0.30 KWh, so these plants will provide energy even to urban public facilities. Already today those who produce photovoltaic electricity, supply energy to public energy managers, but the considerations of renewable current costs and environmental usefulness have already been made above. Without government incentives photovoltaic energy would not exist, as there would be no solar thermal. Instead, does not exist "the pressurized domestic hydraulic system, producer of hydroelectric energy" that does not need public incentives, but only to public rules and regulations obliging manufacturers of pumps and systems to adopt solutions that preserve resources and materials. In order to understand the industrial development of this application and of the systems connected to the same technology, it was also processed the drawing 2/2 in which in addition to Figures 1 and 2 shown on drawing 1/2, already described, are also reported other figures directly linked to the urban environment and to the compressed hydropower production, already deposited with previous patent applications.

Fig. 3 illustrates how it is conceived the geothermal well (16) that feeds the condominium water network (12) and receives the drain water from the overflow of open tanks (3) of Fig. 1, renewing it with water with temperature more low from the geothermal well.



"2/2"

Legenda disegno 2 / 2:

Legend: (1) Steel pressurized tank; (1.1) level regulator with capacitive probes; (1.2) Safety valve with exhaust air in the water; (1.3) pressure gauge with shut-off valve; (1. 4) terminal element flanged of the pressurized tank containing the pump with the double separate power supply; (1.5) flange connection for suction out of the well(2) pump used as a turbine; (2.1) submersible alternating current generator; (3) motorized valve with flow regulation; (3.1) on-off valve with pneumatic control(4) water return socket in the well; (4.1) suction filter; (5) electric pump with double separate supply until the impeller; (5.1) Double curve with septa crossed separators in low pressure (lp) and high pressure (hp); (5.2) baffles of flow separators; (5.3) pump impeller; (5.4) diffuser of the pump; (6) drive motor of the pump with variable speed, controlled by an inverter; (7) motor or alternator coupling; (8) transmission shaft; (8.1) pipe for the passage of the shaft; (9) check valve. (10) pipe of pressurized water output; (11) electro compressor with the storage tank (11.1) network for supplying compressed air; (11.2) solenoid valve and check valve of compressed air; (11.3) pressure switch with regulator; (12) network for the electricity distribution ; (13) electric panel and control system; (13.1) electrical system power cables; (14) up transformer for the supply of energy produced to the public network; (14.1) electric cables for transport of energy produced; (15) altitude of the land; (15.1)

Maximum water level; (15.2) altitude of the seabed, lake or reservoir. (16) steel shirt of the well; (16) perforated shirt of the well to the water inlet; (17) steel profiled spacers between the pressurized tanks; (18) supply from a public water distribution network with solenoid valve slaved to the minimum level probe of the geothermal well.

As can be seen from Fig. 3, the pressurized tank (1) is fed from the bottom with the water of the well in which it is immersed and from the top by the compressed air. The water enters through the filter (4.1), which feeds a side of the pump with double separate supply, but at the same time in the tank is also recycles the pressurized water from the compressed air that enters from the second supply of the incorporated pump in the terminal element (1.4). The internal recycling the pressurized tank serves to balance the static pressure in the impeller of the pump and allow the entrance of the water from the outside of the pressurized tank in the pump through the second inlet, bypassing the opposition of the tank pressure.

In fact, the static pressure is not opposed kinetic Energy that develops within the accumulated volume, therefore, recycling the water on one side of the pump which is fed also from the other side with a flow of water produced by only hydrostatic height not pressurized. Although the flow rates on the two sides of the pump are not perfectly equal, increasing the number of revolutions of the pump with the dual supply increases the flow rate introduced, since the recycling only serves to introduce the external water to be ejected from the air cushion without expand, oscillating between the minimum and the maximum level of the tank (1.1), which can be governed only by the volume of water introduced in the tank pressurized by the second suction mouth of the pump and by pressure of the air cushion. Therefore, to maintain constant the water level in the pressurized tank and produce energy with the maximum of the pressure of compressed air, it is necessary to realize well-balanced sound systems between the flows in the entry, exit, and the compressed air pressure, which must be preserved to the greatest possible time by restoring only the amount of air that is dissolved in the water. Obviously the greater the pressure of the air cushion, the greater the amount of producible energy through the pump used as a turbine (2) with related alternator (2.1). To make sure that the flow rates are perfectly equal, the control circuit acts simultaneously on the motorized valves (3), and the variable speed motor coupled to the pump (4), when they are inserted in the circuit, but above all, with the engine rpm variables (6) of the pump (5) with the dual separate supply.

In figure 3 it is shown a multiple system, with several pressurized tanks and relative superimposed energy circuit. In the figure for reasons of space one can only see two. But this is less cumbersome system, more efficient and cleaner to produce energy locally. It is not necessary that the well is connected to the aquifer. It can also be a blind shaft that always recycles the same water, but if it is connected to the aquifer the production of energy does not damage oxidizes when in the waters consuming nitrates and organic compounds, making the water more drinkable. Obviously, only the arranged above system can be used for the lifting of water, all those below serve only (so to speak) to the energy production and oxidation of water. Obviously, if you install the systems in groundwater wells to lift the water the dynamic level of the well (15.1) should reach the upper plant.

In the systems proposed, the water is enriched with oxygen with high pressure in the tank (1) while energy is being generated, or is raised to the surface for the distribution of water, also while energy is being generated. In fact, the two control valves (3) at the output of the turbine may divert the flow where it is required and manage the residual pressure according to the needs. In other words, not only the production of energy will be without appreciable costs but will also allow us to oxidize the water directly improving the purity of water.

So, suppose to realize in a well a submerged implant of Fig. 3, which produces energy by means of six overlapping circuits, each equipped with a submersible AC generator (2.1) coupled to a pump used as a turbine (pat), that exploits the effective height Hu = 35 m and a dual fuel pump DN 150 with flow rate 35 L / s, modified as shown in Fig. 2. Assuming the turbine efficiency is 0.75, applying the formula Pu = η * 1000 * Q * Hu / 102, we have an energy output of 9.0 kW (0.75 * 1000 * 0,035 * 35/102) for each circuit. Assigning to the pump a prevalence of 0.4 me a yield 0,6, the power absorbed by the same, which leads a double flow of that which passes into the turbine, calculated by the formula 0.4 * 1000 * 0.070 / 102 * 0, 6 = 0, 0456 KW. The plant consists of six water inlet circuits and six output circuits produces a total of 53.7264 kW (54 to 0.0456 * 6) excluding the energy absorbed by the compressor to maintain the pressure constant of 35 m column of water, which is even more negligible the energy consumed for recycling, the pressure having to provide only the amount of air that solubilizes in water.

In this case the relationship between energy expenditure and yield is 196.36 (53.7264 / 0.0456 * 6). Much higher than that calculated for the domestic installation of FIG.1, in part because we hypothesized higher yields for the pumps and larger turbines, but above all, for the higher flow rates and the absence of load losses, since the 'water is recycled within the same pit be raised).

We should not be surprised by this result whereas in hydroelectric with hydraulic jump does not consume even the few watts required to internal water

recycling circuit. The energy reasoning is also valid for much higher size installations, obviously with different yields of the electric pumps, in function of the mounted type of impeller, the flow rate, the nominal point of operation, etc. But in any case the ratio between the energy produced and energy expenditure will depend on the water by the pressure of the air cushion and will always have a higher value of several tens of times, or some hundreds. In fact, the 35 meters of water column used in the formula can be ten times higher in some applications. that have not yet been developed.

It 'obvious that with energy costs so low it can be assumed also to make livable the polar regions mainly producing wells geothermal energy producers connected to the pressurized hydraulic systems, hydro power producer of surface that would create the environmental conditions of life and survival food business .

The FIG. 2, 4, show the enlarged details of the pumps with the dual separate supply until to the impeller in a different version for intubated installations and those submerged in wells, that for reasons of space, they are made differently.

The FIG. 5 shows the enlarged detail of a multistage pump used as a turbine.

La FIG. 6, mostra che la depurazione locale dell'acqua e dell'aria diventa ancora più efficiente e sostenibile, sostituendo le pompe dei principali sollevamenti idraulici con gli impianti pressurizzati i nelle versioni poco ingombranti utilizzate nei pozzi geotermici condominiali, o normali, per ridurre i consumi, migliorare l'ossigenazione dell'acqua e rendere i sistemi depurativi produttori di energia anche nei processi depurativi. In fact, in these systems the lifting pumps were replaced with complete plants described in Figure (3), which use the air drawn from it where it accumulates the CO2 to produce compressed air, by means of the fans (3) and of compressors (4), is to compress the air cushion in the pressurized tank (1), is to enter it in the diffusers (5) which oxygenate the water directly. In these plants, with the residual pressure at the outlet of the turbine (2) lifting the polluted water tothe water overflow trays (6), which produce an artificial rain on steel baskets covered with filter cloth (7) containing calcareous material and residues of concretes. The water that undergoes this process, in addition to purify, becomes alkaline, subtracting CO2 environment, while the sewage treatment plant built with this system produces more energy than it consumes.

The system, object of the present invention is the last of the series concerning the production of energy with the recycling of the water in an open vessel and compressed version. Unfortunately, to the inventor does not touch only make a point about situation state of the art at the moment of birth the invention, but also the point of the whole society creates obstacles to the emergence of a sustainable environment and protective solution. Participate, especially public entities, which should adopt these solutions in the interest of all. It almost seems to be back in the time of Galileo Galilei, when science denied that the earth revolved around the sun, but in those days they could be in good faith. Today, however, there are specific responsibilities, especially by the environment and the world economic development ministries that have already made void to the undersigned four international patents and many national concerning the global water treatment systems involving water and air together, even producing energy biological, that would lead to the cleaning of fossil energy produced by thermal power plants and from the smokestacks. Unfortunately, those solutions have shown that the existing thermal power plants and water treatment plants were wrong from the ground, failing to take account of the full carbon cycle and the chemical and biological processes involved both in combustion processes, both in the long and jagged paths sewer. The worst environmental choices that could be made were precisely the ones that have been made: large thermal power plants and large purifiers, the former can not close the carbon cycle for the immense amount of water that would be needed, and the latter are cathedrals in the desert that far from urban pollution are not useful, especially in air purification. Even the global purification systems, proposed by myself, should have been considered heritage of humanity because they proposed small thermal power plants combined by fossil and biological energy production, with heat recovery and water alkalization, consuming CO2 in greenhouses with limestone artificial rainfall, while the sewers which are currently degenerative water and sludge would become purifying of water and air together, of which a small example is shown in Figure 6 of the drawing 2/2. Unfortunately these solutions, costing many years of work, instead of being adopted and universalized were met by a global silence, in spite of the international agreements signed by all countries at United Nations.

According to the international treaty of 2001 drafted by the United Nations, called "Coding Project on responsibility of States for internationally wrongful acts", governments and the United Nations itself have the power and the duty to adopt as their own environmental and energy projects that have global utility. Why do not they do it? Why do they pretend not to know them when they are deposited right at the ministries of economic development of individual countries? Why leave invalidate patents that would protect the environment and which would make it read the balance of payments instead of promoting solutions that enrich only those companies that waste resources, pollute and warm the planet?

The main reason for which the protection of the environment is of public relevance throughout the world, is mainly due to the fact that the protection of the

environment and energy plants must be designed globally and coordinated with each other to positively interact with the environment surrounding, closing all organic and inorganic cycles that open. These functions can not perform them private companies because they have to be above the interests of a party, choosing the best technologies available to the state in all areas. In fact, private companies generally specialize in individual industrial sectors, producing machines that can be used in purifying and energy systems, or are specialized in public tenders, which are limited to the design of detail already set by public planners across disciplinary Contract. Unfortunately, even the public planners have no preparation to set global projects because the global projects should be based on synergies between different sciences and technologies but put together taking into account the organization of industrial work, which involves crosscutting technical choices to the different sectors and propose new machinery and systems not existing on the international market. The global engineering currently not learns in the best universities of the world because individual faculties do not work collegially, they also being focused on specialized research. The undersigned who had cross experiences, for nearly forty years as a technical installer of environmental and energy industrial systems has realized that all energy and water treatment plants are not complete and current with low yields precisely because are specialists in individual sectors. The technologies can be saved but must be put together in global systems, that are both energy and water treatment. Just will start this process of rationalization you will immediately encounter the first results not only in stopping CO2 emissions, but even in the inversion process, subtracting CO2 from environment. Over all, realizing synergistic systems, biological and especially by compressed hydroelectric it would save a huge amount of resources and materials already running low, as demonstrated throughout http://www.spawhe.eu website. But if governments give up their right and duty to guide investment and to legislate what private companies must do, the protection of the environment and sustainable energy never happen.

Governments fail to reduce the CO2 from the Kyoto Protocol today has increased from 360 to 400 ppm in the atmosphere because it is important, above all, the ways in which you get the reduction of CO2, which must be interactive systems that bring materials and minerals in its place.

The new energy and cars powered by battery are not going in the right direction and do not have even technical and economic justification to appeal. These solutions seem to be become competitive only because they are approaching the cost of fossil energy. But who says that fossil energy is the cheapest? The undersigned has no doubts. The myth of the low cost of fossil energy must be dispelled and, consequently, that of the new energy, that over all, are not those which serve to reverse the process of global warming of the planet.

Writing these things in a patent application should be limited to the technical description of the state, it is my opinion that state of the art should be described without hypocrisy in the interest of science and technology. But it must also be described the reasons for which state of the art does not advance. In fact, the current state of the environment and the world energy involves all the world's environment authorities, who are unable to develop global projects and not even want to talk about it with those who propose them. Even the Patent Offices, which should be impartial and documented scientifically and technologically, have called "perpetual motion" the first patent applications of submerged and pressurized energy, which for myself, instead, are the most economical and clean energy in the world and they should be considered a World heritage Site. It is precisely the difficulty of understanding of these patents that They have spurred myself to propose different solutions, especially pressurized, so that it is fully clarified in the interest of all humanity.

The environmental and economic development of the world's authorities also towards hydroelectric energy with water recycling are using the same strategy of the silence, used against of global purification systems. Although in words they say and write that they want to fight global warming, in fact, the inventors who deal with these problems must face alone the law of the powerful multinational market, which, clearly do not want to clean the fossil energy in a sustainable way to protect the investments made in the opposite direction. To the old fossil and nuclear energy corporations have added new multinational of water and cleansing management, who live by contracts, no research and innovative designs, and others that produce renewable energy that have the only advantage of not emit CO2, but they are expensive, cumbersome, uneconomical, discontinuous. The undersigned does not doubt that the half depuration and half energies are not a step forward compared to the past, but the steps are very small when you consider the billions of resources spent to achieve these results. While the projects and patents of the undersigned that does not cost a cent, or euro to no World taxpayer, are based mainly on the globalization of environmental protection, producing energies that interact with the purification, chemical, biological and geothermal energy with low enthalpy. But what worries is most of all, the systematic silting of sustainable and comprehensive logic solutions, which implement precisely those who have the institutional role of protecting the environment and human health. Patented solutions, that the undersigned has collected http://www.spawhe.eu website, would not even need to be tested but only implemented, having already been

tried nature. In fact, they represent the industrialization of nature implemented by cycles to close the carbon cycle, dissolve oxygen in the water, creating artificial currents of water for energy and nutritional purposes. Nothing to do with the current energy and water treatment systems using separate principles, physical, chemical and biological studied in laboratories with low yields, which applied in the environment do not produce any synergy between water and air, physics, chemistry and biology, contrary to the potential demonstrated by the undersigned that multiplies the returns by just copying from nature.

Are shown below some articles of ""codification project on the responsibility of states for internationally unlawful acts" that should above all protect the environment, as described above, developed by the United Nations.

Article 1

Responsibility of a State for its internationally unlawful acts.

Every internationally wrongful act of a State entails its international responsibility.

Article 2

Elements of an internationally wrongful act of a State

There is an internationally wrongful act of a State when conduct consisting of in an action or omission:

a) it can be attributed to the state the same way as international law;
b) constitutes a breach of an international obligation of the State.

Article 15

infringement resulting in a complex act

Paragraph 1: The breach of an international obligation by a State through a series of actions
or omissions, defined as a whole as illegal, is perfected when producing the action or
the omission which, together with other actions or omissions, is sufficient to constitute the wrongful act.

Paragraph 2: In such a case, the breach extends over the entire period starting with the first of the actions or omissions of the series and lasts for as long as these actions or omissions are repeated and remain not
comply with the international obligation.

Article 48

Invocation of responsibility by a State other than an injured State

Paragraph 1: Any State other than an injured State is entitled to invoke the responsibility of another State in accordance with paragraph 2 if:

a) The obligation breached subsists against a group of States including that State, and established for the protection of a collective interest of the group;
b) The obligation breached arises towards the international community as a whole.

Paragraph 2: Any State entitled to invoke responsibility under paragraph 1 may claim from the responsible State:

a) cessation of the internationally wrongful act, and assurances and guarantees of non repetition in accordance with Article 30;
b) compliance with the obligation of reparation in accordance with the previous articles, in the interest of the State offended or breached the obligation beneficiaries.

Article 54

Measures taken by States other than an injured State.

This chapter does not prejudice the right of any State, entitled under Article 48, paragraph 1 to invoke the responsibility of another State, to take lawful measures against that State to ensure cessation of the breach and reparation in the interest of the injured State or beneficiaries of the obligation breached.

Article 58

individual responsibility

These articles are without prejudice to any question as to the responsibilityindividual under international law of any person acting on behalf of a State.

From the reading of these articles, it is clear that there is responsibility of all sovereign states on the current environmental degradation and even the United Nations that produced the document and each year they organize a world leader to fight global warming. But individual responsibilities are also of individual persons acting on behalf of States. Escapes of responsibility of global public officials, at all levels, for myself, have created and create more damage of the eco-mafia, which can be identified and convicted of civil and criminal law, while the scientific and technological half-truth, half-depuration, the half energies should be locate and correct themselves. Not only they do not intervene, but also ignore the global energy systems and water treatment and hydroelectric energy with recycling water, with or without depuration, as they ignore the hydro motors that could be used on transportation. There are no democratic institutions able to name and shame those, who in the opinion of the undersigned, are authentic masked crime awkwardly, just because a minimum of competence, to understand that all current purification and energy cycles are incomplete especially because the energy systems do not interact with the environment. The undersigned as a designer and inventor could only put on paper how, in his point of view, should globally be designed facilities that would be never merely purifying and never merely energy. Hoping only that they should not be posterity to determine whether has right or wrong.

For the undersigned, even social problems could be solved with the transparency of public design, which should be a guide and example for private

designs, while today there are brakes that increase hunger, unemployment, the gap between rich and poor, probably, wars and terrorism. If someone demonstrate that clean energy could be produced in fixed and mobile version with very low costs, using water and air, even at the poles, what sense would have the current economic power wars and the speculation on energy sources and special materials?

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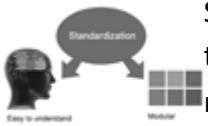

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4. Manuscript's Category,

5. Structure and Format of Manuscript,

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Manuscript submission is a systematic procedure and little preparation is required beyond having all parts of your manuscript in a given format and a computer with an Internet connection and a Web browser. Full help and instructions are provided on-screen. As an author, you will be prompted for login and manuscript details as Field of Paper and then to upload your manuscript file(s) according to the instructions.

To avoid postal delays, all transaction is preferred by e-mail. A finished manuscript submission is confirmed by e-mail immediately and your paper enters the editorial process with no postal delays. When a conclusion is made about the publication of your paper by our Editorial Board, revisions can be submitted online with the same procedure, with an occasion to view and respond to all comments.

Complete support for both authors and co-author is provided.

4. MANUSCRIPT'S CATEGORY

Based on potential and nature, the manuscript can be categorized under the following heads:

Original research paper: Such papers are reports of high-level significant original research work.

Review papers: These are concise, significant but helpful and decisive topics for young researchers.

Research articles: These are handled with small investigation and applications

Research letters: The letters are small and concise comments on previously published matters.

5.STRUCTURE AND FORMAT OF MANUSCRIPT

The recommended size of original research paper is less than seven thousand words, review papers fewer than seven thousands words also.Preparation of research paper or how to write research paper, are major hurdle, while writing manuscript. The research articles and research letters should be fewer than three thousand words, the structure original research paper; sometime review paper should be as follows:

Papers: These are reports of significant research (typically less than 7000 words equivalent, including tables, figures, references), and comprise:

(a)Title should be relevant and commensurate with the theme of the paper.

(b) A brief Summary, "Abstract" (less than 150 words) containing the major results and conclusions.

(c) Up to ten keywords, that precisely identifies the paper's subject, purpose, and focus.

(d) An Introduction, giving necessary background excluding subheadings; objectives must be clearly declared.

(e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition; sources of information must be given and numerical methods must be specified by reference, unless non-standard.

(f) Results should be presented concisely, by well-designed tables and/or figures; the same data may not be used in both; suitable statistical data should be given. All data must be obtained with attention to numerical detail in the planning stage. As reproduced design has been recognized to be important to experiments for a considerable time, the Editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned un-refereed;

(g) Discussion should cover the implications and consequences, not just recapitulating the results; conclusions should be summarizing.

(h) Brief Acknowledgements.

(i) References in the proper form.

Authors should very cautiously consider the preparation of papers to ensure that they communicate efficiently. Papers are much more likely to be accepted, if they are cautiously designed and laid out, contain few or no errors, are summarizing, and be conventional to the approach and instructions. They will in addition, be published with much less delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and to make suggestions to improve briefness.

It is vital, that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

Format

Language: The language of publication is UK English. Authors, for whom English is a second language, must have their manuscript efficiently edited by an English-speaking person before submission to make sure that, the English is of high excellence. It is preferable, that manuscripts should be professionally edited.

Standard Usage, Abbreviations, and Units: Spelling and hyphenation should be conventional to The Concise Oxford English Dictionary. Statistics and measurements should at all times be given in figures, e.g. 16 min, except for when the number begins a sentence. When the number does not refer to a unit of measurement it should be spelt in full unless, it is 160 or greater.

Abbreviations supposed to be used carefully. The abbreviated name or expression is supposed to be cited in full at first usage, followed by the conventional abbreviation in parentheses.

Metric SI units are supposed to generally be used excluding where they conflict with current practice or are confusing. For illustration, 1.4 l rather than 1.4 × 10-3 m3, or 4 mm somewhat than 4 × 10-3 m. Chemical formula and solutions must identify the form used, e.g. anhydrous or hydrated, and the concentration must be in clearly defined units. Common species names should be followed by underlines at the first mention. For following use the generic name should be constricted to a single letter, if it is clear.

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Abstract, used in Original Papers and Reviews:

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Many researchers searching for information online will use search engines such as Google, Yahoo or similar. By optimizing your paper for search engines, you will amplify the chance of someone finding it. This in turn will make it more likely to be viewed and/or cited in a further work. Global Journals Inc. (US) have compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Key Words

A major linchpin in research work for the writing research paper is the keyword search, which one will employ to find both library and Internet resources.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy and planning a list of possible keywords and phrases to try.

Search engines for most searches, use Boolean searching, which is somewhat different from Internet searches. The Boolean search uses "operators," words (and, or, not, and near) that enable you to expand or narrow your affords. Tips for research paper while preparing research paper are very helpful guideline of research paper.

Choice of key words is first tool of tips to write research paper. Research paper writing is an art.A few tips for deciding as strategically as possible about keyword search:

- One should start brainstorming lists of possible keywords before even begin searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in research paper?" Then consider synonyms for the important words.
- It may take the discovery of only one relevant paper to let steer in the right keyword direction because in most databases, the keywords under which a research paper is abstracted are listed with the paper.
- One should avoid outdated words.

Keywords are the key that opens a door to research work sources. Keyword searching is an art in which researcher's skills are bound to improve with experience and time.

Numerical Methods: Numerical methods used should be clear and, where appropriate, supported by references.

Acknowledgements: Please make these as concise as possible.

References

References follow the Harvard scheme of referencing. References in the text should cite the authors' names followed by the time of their publication, unless there are three or more authors when simply the first author's name is quoted followed by et al. unpublished work has to only be cited where necessary, and only in the text. Copies of references in press in other journals have to be supplied with submitted typescripts. It is necessary that all citations and references be carefully checked before submission, as mistakes or omissions will cause delays.

References to information on the World Wide Web can be given, but only if the information is available without charge to readers on an official site. Wikipedia and Similar websites are not allowed where anyone can change the information. Authors will be asked to make available electronic copies of the cited information for inclusion on the Global Journals Inc. (US) homepage at the judgment of the Editorial Board.

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For scanned images, the scanning resolution (at final image size) ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs) : >350 dpi; figures containing both halftone and line images: >650 dpi.

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TECHNIQUES FOR WRITING A GOOD QUALITY RESEARCH PAPER:

1. Choosing the topic: In most cases, the topic is searched by the interest of author but it can be also suggested by the guides. You can have several topics and then you can judge that in which topic or subject you are finding yourself most comfortable. This can be done by asking several questions to yourself, like Will I be able to carry our search in this area? Will I find all necessary recourses to accomplish the search? Will I be able to find all information in this field area? If the answer of these types of questions will be "Yes" then you can choose that topic. In most of the cases, you may have to conduct the surveys and have to visit several places because this field is related to Computer Science and Information Technology. Also, you may have to do a lot of work to find all rise and falls regarding the various data of that subject. Sometimes, detailed information plays a vital role, instead of short information.

2. Evaluators are human: First thing to remember that evaluators are also human being. They are not only meant for rejecting a paper. They are here to evaluate your paper. So, present your Best.

3. Think Like Evaluators: If you are in a confusion or getting demotivated that your paper will be accepted by evaluators or not, then think and try to evaluate your paper like an Evaluator. Try to understand that what an evaluator wants in your research paper and automatically you will have your answer.

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11. Revise what you wrote: When you write anything, always read it, summarize it and then finalize it.

12. Make all efforts: Make all efforts to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in introduction, that what is the need of a particular research paper. Polish your work by good skill of writing and always give an evaluator, what he wants.

13. Have backups: When you are going to do any important thing like making research paper, you should always have backup copies of it either in your computer or in paper. This will help you to not to lose any of your important.

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16. Use proper verb tense: Use proper verb tenses in your paper. Use past tense, to present those events that happened. Use present tense to indicate events that are going on. Use future tense to indicate future happening events. Use of improper and wrong tenses will confuse the evaluator. Avoid the sentences that are incomplete.

17. Never use online paper: If you are getting any paper on Internet, then never use it as your research paper because it might be possible that evaluator has already seen it or maybe it is outdated version.

18. Pick a good study spot: To do your research studies always try to pick a spot, which is quiet. Every spot is not for studies. Spot that suits you choose it and proceed further.

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20. Use good quality grammar: Always use a good quality grammar and use words that will throw positive impact on evaluator. Use of good quality grammar does not mean to use tough words, that for each word the evaluator has to go through dictionary. Do not start sentence with a conjunction. Do not fragment sentences. Eliminate one-word sentences. Ignore passive voice. Do not ever use a big word when a diminutive one would suffice. Verbs have to be in agreement with their subjects. Prepositions are not expressions to finish sentences with. It is incorrect to ever divide an infinitive. Avoid clichés like the disease. Also, always shun irritating alliteration. Use language that is simple and straight forward. put together a neat summary.

21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

23. Multitasking in research is not good: Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

25. Take proper rest and food: No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

31. Adding unnecessary information: Do not add unnecessary information, like, I have used MS Excel to draw graph. Do not add irrelevant and inappropriate material. These all will create superfluous. Foreign terminology and phrases are not apropos. One should NEVER take a broad view. Analogy in script is like feathers on a snake. Not at all use a large word when a very small one would be sufficient. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Amplification is a billion times of inferior quality than sarcasm.

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33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

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Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

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To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

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Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.

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The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

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- Fundamental goal
- To the point depiction of the research
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- Significant conclusions or questions that track from the research(es)

Approach:

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- Center on shortening results - bound background information to a verdict or two, if completely necessary
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The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
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Approach:

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Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

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- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

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- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

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The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
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Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
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Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

Index

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