

Role of cooperation in entrepreneurship development and employment in field of new energy

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Abstract: This article studies role of cooperations in creating opportunities for using rich renewable energy sources and also their potential role for entrepreneurship and employment in Iran. The presence of constant, sustainable and economical energy is an essential basis for any economical and social development while it can upgrade life qualities. Iran has a considerable amount of natural resources for modernizing its energy supply and being transited to a sustainable energy system as it has countless opportunities for using rich renewable energy sources. On the other hand, cooperation have been considered as a strategic way to create job opportunities as they are strong organizations which can encounter economical and social side affects caused by quick moderating procedures in structural programs.

Results show convergence between renewable sources development and Iran's economical development through taking a frugal approach in expenses, creating new job opportunities and entrepreneurship in renewable energies.

Keywords: Renewable energy, cooperation, new energy, entrepreneurship.

1. Introduction

It is so much important for under-developing countries to have access to different types of new energy sources. According to the investigations there is a direct relation between the development level of a country

and its energy consumption rate. Regarding the limited reserves of fossil energy and increasing consumption level of energy in current world, it is impossible to rely on present resources. The share of renewable energies in the total energy consumption in OECD countries in 2001 was %5.7 from which %12 was

supplied by solar and wind energies. %22.1 of electrical energy production in Europe will be through new energies by 2010[1]. In U.S.A also any reduction of using fossil energies in comparison with 1990 is about %7 in 2010 and since one of the great sources of producing green house gases is combustion of fossil fuels for producing of electricity, this may cause a reduction- more than %40- of environmental pollution [2]. According to the 4th 5-year state's development plan in Iran, it is necessary to have 500MW of consuming electricity, supplied by renewable energies [3]. In comparison with key goals of sustainable energy systems, there is a constructional shortage in energy system of Iran which may prevent from any modernization process and may cause further considerable economic, social and environmental costs for current and future generations. The mentioned shortage includes , quick development of transportation section in dense cities and its great share in energy consumption for personal transportation in civil environment , The high rate and non-suitable share of families in total electrical and heating energy consumption, increasing share of requests for Oil & gas which have considerable effects on export capacity and currency income of the country , subsidy system and superficial reduction of energy price which may encourage the consumers more , The severity of energy out of mentioned shortage and its higher amount than its average in industrial & under-development countries and so on [4].

2. Challenges of Energy Carriers Consuming Management

Low price of energy carriers great subsidy of government in so that energy sector

in last year was equal to 15% domestic gross production, irregular and non-optimum energy consumption, energy wasting, controlling great section of energy by government, lack of economical index and legal problem in the field of energy are some of the problems of energy in Iran. The process of energy consumption in developing countries indicates that population growth, technical development, political sovereignty, national independence and... has direct relationship with energy consumption [5]. Meanwhile increasing energy consumption and increasing need to energy, limitation of energy reserves, termination of fossil fuel reserves and environmental problems as a result of consuming resources are among important factors that remembers necessity of economizing on energy consumption in human societies. In Iran cheapness of energy carriers and having access to many energy resources has caused that our society will be faced with considerable delay in necessity of optimizing energy consumption. Meanwhile using suitable solutions for preventing from wasting and irregular consumption of energy and correcting consumption pattern is greatly felt in Iran, since preventing from wasting fossil fuels besides having access to sustainable development and keeping resources for future generations, will result in decreasing environmental pollution that is regarded as one of the main problems of societies. Energy carriers are regarded as one of the important items of production and also consumption goods of families play very important role in specifying production costs and expenditure of families. Fluctuation in price of energy carriers will result in fluctuation of production costs, expenditure of consumer and finally inflation. In this way, one of the important

topics for explaining policy of correcting price of energy carriers is studying effects and consequences of executing this policy on macroeconomic variables, so that besides recognizing causative relations among aforesaid variables, the mechanism for offering amendment or supporting policy for decreasing possible negative consequences and moving economy in the path of increasing effectiveness of production factors will be specified. Doubtlessly cheapness of price of energy carriers during previous years was resulted in irregular and excess energy consumption and wasting national resources and intensifying destruction of environment.

3. Sustainable Energy Policy Making

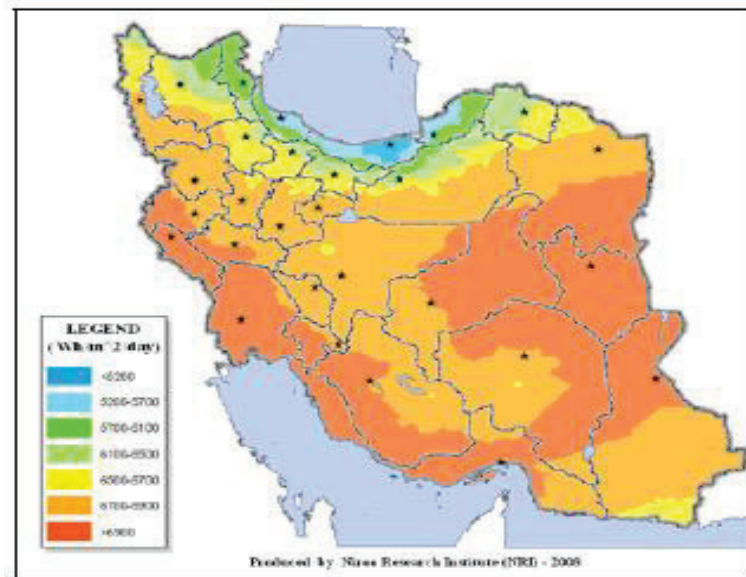
Regarding all international researches in the field of sustainable energy policy making, it is possible to specify four strategic goals as the future policy bases of Iranian Energy including the social acceptance, efficiency of resources, environmental effectiveness and economic efficiency. In comparison with key goals of sustainable energy systems, energy system in Iran has some structural shortages which may prevent from modernization process and cause considerable economic, social and environmental costs for current and future generations. These shortages include quick development of transportation in dense cities with a great share in energy consumption for personal transportation in civil environment, The high rate and non-suitable share of house section in total consumption of electrical and thermal energies, increasing demands for oil and gas which have considerable effects on export capacity and currency income of the country, Subsidy system and superficial reduction of energy

price which may encourage the end-users, High rate of energy out of mentioned shortages with its higher amount than its average rate in industrial & under-developing countries and so on[6].

Since the average world radiation of sun is about 19.23 MJ/m²/day in Iran and with more than 7.7 hours /day in central areas , it is possible to say that solar radiation amount in Iran is one of the greatest around the world. For instance in Germany it is about 800-1000 MJ/m²/year lower than half of the amount in Iran [7]. Regarding the area of Iran which is about 1,648,000 km², then the total radiation amount in Iran is about 3.3 million terawatt hour /year that is 13 times more than total energy consumption in Iran. In spite of natural suitable radiation, any applying of solar energy in Iran is so much little. In order to create a solar heating energy system, we need some tools and equipments including collector, heating carrier fluid, Heating module fluid, storage resource and a control system. There is no more need to an exchange, reserve resource and control system for simple systems. Figure (1) shows total energy radiation on horizontal level in summer on annual basis.

According to the obtained information of this figure, percentage of high/low amounts in annual drawing of total solar energy radiation against the average rate is respectively equal to 0.14 and 0.28 that is a sign of little differences in average rate of this parameter with high rate in country. In other words it shows that there is a suitable solar energy potential in a wide area of Iran [8].

Fig. 1. Total solar energy in summer in Iran



4. Analyzing Economical Patterns of Cooperative and Improving Cooperatives

In spite of having strong theory in the field of cooperative economy, besides that in country it is less attention to this issue, in economical literature a suitable quantitative pattern that can study and calculate effects and consequences of cooperative is less developed. In spite of long record of cooperatives at economical activities of human being, until 1940's there was no official pattern and explaining theory of economical activity of cooperative specially in the section of energy, from 1940's until 1960's most of the theoretical topics of organization insisted on this issue that cooperative is special mode of general merging via institutes. The main question in this period was that are cooperatives really regarded as institute. Emelianoff (1942) was the first researcher that officially and scientifically analyzed behaviour of cooperative. He deduced that since cooperative is always working at the level of cost it does not have benefit or loss, therefore it is not a profit

making unit and cannot be like an institute. This idea was later on developed by Philips (1953) Robotka (1957) and was officially regarded as a pattern for making decision in relation to production and pricing. According to their analysis cooperative cannot have independent entity from member economical units and therefore it is not possible to specify target function and special economical behavior. This status nullifies possibility of using principles of optimization for cooperatives. This deficiency has caused Enke (1954) to define cooperatives as special mode of economical institutes which has analyzed it. His works caused process of making decision to transfer into cooperatives and it will be possible to use economical theories for analyzing behavior of cooperatives. He believed that if manger maximizes sum of excess for producer and consumer, the welfare of cooperative members and the cooperative itself will be optimized. The fundamental problem of this pattern is that it will not result in permanent balance. Maybe the most complete pattern is pattern of Helmberger and Hoos (1962). Their

work lasted 20 years as standard pattern of cooperative theory. On this basis the cooperative behaviour can be patterned by using common tools of neoclassic theory of Investor Owned Firm (IOF). According to their definition, cooperative act based on zero profit and all of the resulted excess will be returned to members. Based on mentioned discussions cooperative has control over production level of its members and its balance point is where the curve of Net Marginal Revenue Product income (NMRP) intersects curve of supplying total members(s). The NMRP curve in fact is curve of demand of cooperative for net product and in accordance with theory of economy, balance is where the demand of institute intersects curve of supplying institute. Therefore cooperative can be described as an institute that is created with the goal of achieving to factors including Ownership, Control and Using Services and conclude that concept of school of cooperative section is the most logical theory for having attention to movement of cooperative in today's modern society via putting the goals of aforesaid 3 groups in same direction. For achieving to maximum power and effectiveness, different cooperatives shall be regarded as separate section inside of economical system of country. Cooperative as part of an economical system intends to observe society within several guild unions in which government with the goal of maximizing public benefit is responsible for arbitration. Therefore cooperative system will have guild union economical nature, but economical system of cooperative is not guild union economical system. The main and strategic motivation in cooperative system is reaching to maximum achievable advantages of other systems besides preventing from disadvantages that are regarded as

nature of these systems. Cooperative system is between free investment system and framed socialism system i.e. in this system in spite of accepting private ownership of productive factors the ownership of human by these tools will be rejected. In this system decisions are specified by humans via cooperatives not via their capitals but due to rejecting personal profit making the private ownership of productive factors cannot be regarded as main index of life of cooperatives[9].

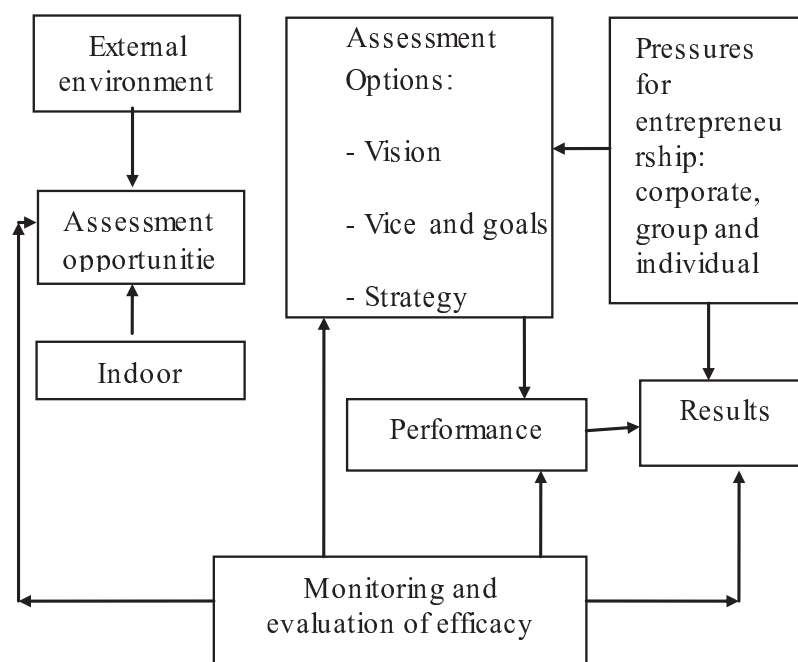
5. Effective Factors on Creating Entrepreneurship Organization

In the present age entrepreneurship is regarded as driving force of economical growth and development and most important factor for creating employment. Therefore most of the governments have accepted entrepreneurship as strategy of national development and have fulfilled many activities for its development. It has been a while that in our country one of the basic policies of government is supporting from entrepreneurship and in laws of economical, social and cultural development there is special attention toward it. In this research in accordance with capacities of section of new energies as solar energy on entrepreneurship, employment and also importance of producing and consuming energy carriers with approach of developing cooperative, it is attempted that besides recognizing effective factors on development, working at this section and specifying and suggesting some strategies to prepare suitable grounds for development of entrepreneurship in the field of new energies as one of the most important factors of permanent development in Iran. Experts believe that human do not have

great difference in relation to level of talent in creativity and entrepreneurship rather it is differences in social environment that result in growth of entrepreneurship income countries i.e. each society in accordance with level of importance and attention to its entrepreneurs will benefit from their effectiveness. Therefore it is governments that by making policies and compiling support laws and generally suitable strategy can create suitable environment of entrepreneurship. By clarifying effect of entrepreneurship on employment and economical growth of countries, different governments all through the world executed several support programs from development of entrepreneurship. Therefore its been a while that one of the macro policies of government in Iran is developing entrepreneurship and at laws of economical, social and cultural development it has received special attention. Other policies including preparing 20 years perspective document, executing principle 44 of the constitution, insisting on decreasing role of government

and delegating activities to private sector have put special attention toward this issue. By passing more than 30 years from birth of concept of Organizational Entrepreneurship, several definitions have been offered about it. In order to develop organizational entrepreneurship several models are offered including model that is introduced by Kornoal and Berleman (figure 2). As it is obvious from figure 2 one of the effective factors on process of executing an entrepreneurship activity inside of organization is inner environment of organization. Researchers have insisted that in order to improve organizational entrepreneurship it is necessary to stabilize indices within inner atmosphere of organization. Of course outer environment is effective on increase or decrease of entrepreneurship activities within organization, but since its parameters are out of control of managers it is less dealt with them. Many researches have certified relationship between efficiency and entrepreneurship in organization.

Fig. 2 Corporate entrepreneurship model



For example some researchers have observed that more efficiency in great organizations is accompanied with higher degree of inner organizational entrepreneurship. Also companies with higher innovation in following and using entrepreneurship opportunities have better efficiency in comparison to other companies [10]. Thus in the organizational entrepreneurship literature there are several items that indicate direct relationship between inner organizational entrepreneurship and improving performance of organization. Based on conducted studies on Iranian companies some of the effective factors on organizational entrepreneurship at these companies are offered in short:

- Flexibility of Manager: It seems that this is the most effective and important factor in path of movement of organization toward entrepreneurship. Flexibility of managers against new ideas and being prepare for facing changes is necessary for these innovative activities
- Riskability of Employees: The second effective factor is having riskability morale in employees
- Humanistic Look of Manager toward Employees: Not looking to employees as tool
- Decreasing Occupational Sequence: In entrepreneurship organizations having simple structural conditions will facilitate work of system
- Freedom of Speech for Ideas: Positive look toward ideas of employees
- Self Selecting Culture: In entrepreneurship organizations generally people themselves specify their work and they are less influenced by organizational obligations
- Decentralization on Organization:

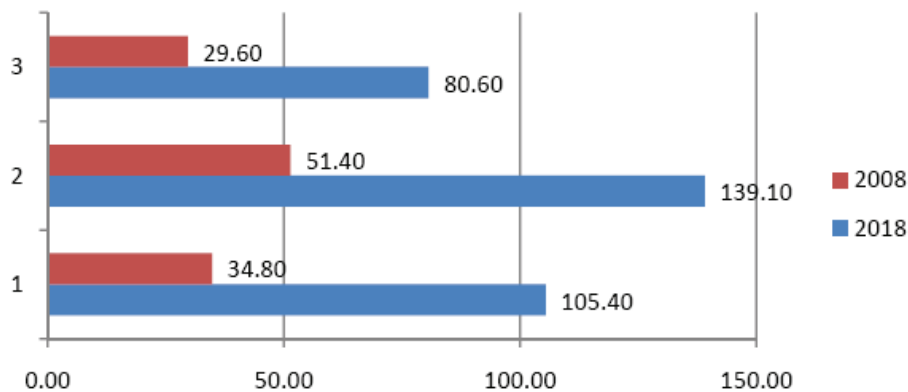
decentralization is regarded as another characteristic of entrepreneurship in Iranian organizations.

6. Importance of Developing Entrepreneurship in the Field of New Energies

In a simple analysis and comparison of numbers in the year 2007 and 2008 all through the world, in spite of economical depression in many countries in the year 2008, companies that were active in the field of developing and growing section of clean energy in world had growth of 53%. Studies that were conducted in relation to increase of income in the year 2008 in comparison to year 2007 indicated that some effective factors have created this growth. Some of these factors include developing system of wind energy in farms and decreasing final price, increasing and developing market, high demand and low supply in this section clean edge institute which is active in the section of developing nanotechnology specially in developing clean energies market in a report in relation to process of income and developing clean energy has offered the following issues:

For the first time income as a result of wind energy in the year 2008 was more than \$50 billion and income as a result of clean energy (solar, wind and bio mass) from \$75.8 billion was increased to \$115.9 billion in comparison to year 2007 to 2008. The newest investment section in solar energy including equipments, supplying financial resources of projects, public markets and development section had a growth of 4,7% from \$148.4 billion in the year 2007 to \$155.4 billion in the year 2008 (figure 3).

Fig. 3 Share of Solar Energy



In 2008 there were 6043407 person working at recyclable energy section all around the world, that in accordance with projects all though the world and future programs

of developed and developing countries, it is expected that in the year 2018 the number of people working at section of clean energies will reach to 2,657,292 (table 1).

Table 1: Renewable Energy contribution

Year 2018	Year 2008	Kind of Energy
1341968	190819	Solar Energy
1315324	413341	Wind Energy
2657292	604341	Total

7. Influence Theory

Influence of technology is a model likes in which at first it will start with very low speed and then it reaches to maturity stage and finally it will decline and descending process will start from this stage. The logic of this chart is that at any technology in accordance with growth and its development in a time, based on limitations in future this growth will be stopped therefore we will have 4 phases including: Learning Stage or Study, Growth, Maturity and Decline. By entrance of a new technology at before maturity stage and recognizing capacity of market and its development it is possible for reaching

from decline stage to ascending stage. In fact this merge of new technology with old technology will enable producer to continue its permanent development and safe himself from decline stage [12]. From view point of consumer there are 5 stages including: Knowledge, Certainty, Making Decision, Supervision and Certification [13]. According to this theory consumer in accordance with knowledge toward old and new technology that in fact is a kind of new mechanism in making decision, shall use a kind of trust toward this new technology that this technology is complete and make suitable decision for buying that. Therefore in case of dissatisfaction of customer it is possible that this innovation will return.

8. Commercialization of Solar Energy

Several definitions have been offered for the term commercialization. Some have defined it as standardization of production operation for offering and transferring knowledge and technology to other people. Some other people have defined commercialization as transferring knowledge and technology from one person to another person or from a group to another group with the goal of using it in process system of a product or method for fulfilling work. In the simplest definition the term commercialization is very close to transferring technology i.e. process of commercialization is the same process of transferring knowledge and technology from research center to available industries or new businesses. In sum commercialization can be defined as reaching an idea or innovation to market by conducting research on market, extracting needs of market, conducting required tests, preparing sample, standardization of process for developing product and managerial arrangement for supplying product to market or applicant. In order for development and commercialization of successful innovation there is need to study influence theory and localization of innovation in different regions, thus defeat of some companies in commercialization and innovations is a result of lack of complete understanding from influence theory and native products and localization of services.

9. Conclusion

Developing new energies has an important role for changing natural resources into energy in which plays an important role in sustainable development of each country.

But in this relation in accordance with commercialization frameworks that are offered in this research the complementary role of cooperative companies especially entrepreneurship cooperatives is creation of companies and innovation. In the present and future atmosphere of global economy simultaneous with obligations of competition, the section of new energies shall respond to necessities of economic competition and this is possible only by improving abilities of new energies. Developing new energies is not created without the lack of technology and a fundamental revision shall be made. Mechanisms of commercialization of new energies shall receive special attention. In today's world changing technological ideas to projects and useful issues that are accepted by market has the same value of creating new knowledge. Experience of developed countries certifies that there is stable relationship among research and required productions of market. Developing research and development centers in the section of new energies will result in creation of fundamental innovations and independence of this field. Formation and development of entrepreneurship culture and encouraging energy entrepreneurs simultaneous with creating required mechanism can be regarded as effective solutions in the process of commercialization and innovation of new energies.

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