

REINDUSTRIALIZATION OF SERBIAN AGRICULTURE: TOWARD A MORE BALANCED AND KNOWLEDGE BASED RURAL DEVELOPMENT¹

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Abstract

The paper deals with the role and importance of reindustrialization of Serbian agriculture due to the importance of technology and knowledge development. Those are the factors of agricultural production prosperity, especially in the rural areas where they offer possibilities for more balanced development in accordance with local natural features and regionalization of agricultural production. Following the latest international experiences, in the area of regional development and planning, in market oriented economies, the authors point out the need for reindustrialization of obsolete agriculture and implementation of new industrial policies within the Republic of Serbia. According to the authors, the special efforts have to be focused toward the development of knowledge based agriculture. The above mentioned is directing to new concepts and reorientation of Serbian agriculture based on new approaches that are standing on the new foundations. Reindustrialization, supported by the relevant policies, should enables possibilities for Serbian agriculture to achieve better results, as well as to be better structured at the new bases.

Key words: *reindustrialization, industrial policies, technological development, knowledge based agriculture, balanced development.*

¹ Paper is a part of project research III 46006 - *Sustainable agriculture and rural development in function of Republic of Serbia strategic goals achievement within the Danube region*, financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia - project period 2011-2014.

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Introduction

From the point of the development theory, second half of the XIX and first half of the XX century could be characterised as a period with poor results. Instead of studies of social and economic development, the growth theory of the capitalistic i.e. market economy system has been improved. The studies on development were issued only by chance like Josef Schumpeter's' book from 1911 (*The theory of development*). But such and similar works were unmarked in that time until the mid of the XX century. So, the development that is followed by social, economic and political transformation was for a long period of time out of concern. The better situation was when the critics of capitalism are in focus. The theory of so called social reproduction and the vision of a state as a mostly system of equality of the citizens in which the obstacles of capitalism are relativized, in the very beginning was the issue raised by socialists, before all Karl Marx⁴. Based on his concept, as well as on the way how was governed the development strategy of Soviet Union, it was established a lot of today's development theories. For instance, based on so called, material balanced development strategy, Vasily Leontief - USA formulated input-output analysis, or Feldman G. A. who developed sophisticated mathematical models two decades before well-known Harrod – Domar's model, etc. (Domar, 1957).

On the other hand, slowing of the capitalism growth and rising of World economic crisis in 1929, as a consequence of monopolistic structure (concentration and centralization of capital), finally push the western economists to start to think and resolve the cumulated problems. J. M. Keynes (1956) as establisher of state capitalism suggested abundance of *laissez-faire*. It was generally accepted and helped in resolving the World economic crisis. Continuing, other economists analysed the dynamic of economic development and growth of market oriented economy. They have seen a big distortion between productivity and standards of living in developed and underdeveloped countries, but also within them (Clark, K.; Pigou, A.; Robinson, J.; Lange, O.; Kalecki, M. and others). It could be mentioned K. Galbraith (1967) as one who thought that state intervention can bring better proportion to socio-economic system and who was against prerequisites on consumers' sovereignty in market economy and promotion of price control policy.

⁴ Fundamentals of the economic development theory are based on criticism of capitalism by Preobrazhensky, Trotsky and Bukharin, what enabled a policy of USSR industrialization and its fast transformation, from the aspect of economy, from lag behind Russia into the superpower.

All previously mentioned established a large number of authors contribution after II WW, dealing with development issues, the role of industry and agriculture in the process of development, regional and rural development, etc. It was of such a volume that Jacob Oser (1967) was cynically expressed that production of literature dealing with development in underdeveloped countries became most favourable development branch in developed countries. In spite of that remark it's essential to mention few theoretical aspects of modern development. On that way, in the terms of macro approach, reindustrialization of agriculture of underdeveloped country, like Serbia is, could be recognised as important goal.

The development theories formulated in last seventy years are often cited, in spite of relatively narrow effects in theory and practice. They are often analysed from the aspect of their effects done in the overall economic development. In that sense, it is worthy to mention the Millennium goals of UN. Therefore, the analysis of economic theory development requires selection of basic analytical material and later generalization of the derived solutions. Furthermore, most often is insisted on relatively small number of cases of poverty that are caused, and after its generalization, possible solutions are provided i.e. *recipes*. In such approach, the institutional frame that is providing so called neo-colonial exploitation through local state management structure is often forgotten. That local state management structure became the instrument of neo-colonialists for obstruction of any social progress.

The historical development of countries has divided the world into two categories, one which is abundant in everything and another that is suffering. Further division goes within the countries. Therefore, such approach has vast weaknesses in its structure i.e. in existing social relations. Also, many authors are often expressing *circulus vitiosus* of poverty. That statement is argued by the fact that the industry can not be developed because of narrow local market, or that accumulation is relatively small because of low incomes, etc. Along with that, opinion of neo-maltusians, which looks at the poverty problem from the side of high birth-rates, has to be added.

In such situation the role of agriculture is seen as significant in initial phases of development. Also, it is difficult to generalize all conditions within the overall development model, which could be out of differences in natural conditions on one side, as well social relations on the other. This is due to fact that agriculture in underdeveloped countries dominates in the starting phases and as it has already existed, it does not mean introduction of new industry but modernization of existing one, in other words reindustrialization based on new approaches and

developmental levels. It is not so easy because every country has its own development history that is influencing next development steps: size of estate, literacy - education level of the farmers, their ability to accept new models of farm activities, their relation to the market, etc. Mentioned facts possess crucial value in determination of developmental model in agriculture of some country and of course, within whole economy. It could be underlined a large number of risks that follow process of agricultural production (climatic, size of farm, differences in historical development). These affect agricultural development from the very beginning phase of rethinking the possible development approach for the particular country.

Finally, there is concept of balanced development of economy branches on one side, but also the level of balanced development of particular regions on the other. First could be called as industry branch approach, while second could be named territorial approach. Both are promoting re-industrialization of agriculture. In starting phases of industrialization process of agriculture is considered introduction of industrial methods of work and step by step implementation of big scale production (corporatization). In next phase, phase of reindustrialization, through implementation of modern industrial policies, agriculture has to become (science) knowledge based. It covers implementation of hi - tech innovations and development of the branches like biotechnology, genetic engineering, etc., what could bring agriculture to the leading position especially in rural areas. Trend of permanently low productivity in agriculture could be alleviated, so labour from agriculture will stop to be transferred in industrial sector in higher percentage.

Is agriculture a priority?

The priority of agricultural development of underdeveloped countries within the overall development process has been emphasized by numerous economists, so in favour of such approach they introduce a lot of different arguments. During the mid of XX century, well known Marxist Maurice Dobb (1951) stressed that if we need to point out only one factor that fundamentally limits the speed of economy development, we can not avoid market surplus of agriculture. He particularly underlined market surplus of agriculture, not the total production or productivity of total production. The same approach has had Kindlberger (1958) who pointed out in his textbook that the base obstacle during the process of capital formation in any underdeveloped country is creation of agricultural products surplus, which has to be used for feeding of workers employed in production industries of capital goods.

Prowse and Chimhowu (2007) are giving three possible pillars that can facilitate poverty exits in rural areas. According to them only agricultural growth is not sufficient to enable farmers to escape chronic poverty, so next elements are required: establishment of solid economic and physical (communal) infrastructure; continuous education is key activity as for agriculture - based poverty exits, as well as for diversification beyond agriculture; stronger information provision through extension services and innovative delivery channels. In other words agricultural growth is particularly unlikely to be sufficient along with the lack of good infrastructure, unsatisfactory education and inefficacious information services.

Also it could be mentioned the opinions of Gustav Papanek (1954), scientist who firstly recognized the need for giving a priority to the agricultural development, where he established following arguments:

- Modernization, technical improvement and mechanization of agriculture in some countries is needed to support the need for manpower in industry;
- Agricultural production can be increased with relatively small amounts of the capital;
- It's difficult to develop industrial production in underdeveloped countries because of lack of capital and managerial and entrepreneurial ability, as well as because of some institutional limitations, inadequate social services (transport, communication or energetic). On the contrary, in agriculture it could be made a great progress with relatively small changes in technology;
- Agricultural development represents the savings of social capital because it needs minimal investments;
- Beside of domestic there is lack of foreign capital;
- Many structural changes in agriculture could be implemented before the start of technology development and industrialization;
- Due to the overall development in underdeveloped countries, higher income initiates agricultural development or import of agricultural products. So it is better to approach the developmental processes within the agriculture of certain country.

After analysis of mentioned arguments it could be concluded that they are not founded well. They are also refuted by global development practice. So, authors needed to use more sophisticated approaches. For instance, Johnston and Mellor (1961) are pointed out that higher production and productivity of work immensely contribute to: the overall economic development of certain country, because there come to huge raise of agricultural products consumption, or

expansion of export could become important factor, then additional workers for the other sectors could be created in agriculture, agriculture represents a base for creation of investments in social infrastructure, as well as growth of salaries in agriculture could provide a boost for expansion of industrial production. Additionally they are stressing the need for establishment of social and economic proportions. Besides, they thought that agriculture could become bottle neck of economic development. That creates the balanced development approach, which wasn't precisely formulated so many authors use it for describing and analysing different phenomena⁵. It's also worth to mention the dual sector model (Lewis, 1954), which was presented in theory and practice up to now, no matter that it is not connected by population density and nature of wealth any more. But, thing which is acceptable within the theory of balanced development is the need for investigation of investment complex as a whole, as well as coordination of investments with other measures of economic policy. In contemporary circumstances it could be connected with investment in development of knowledge and technology as the most important factors of faster agricultural development.

The main factors of rapid development of agricultural production

It is a fact that there are a lot of factors which affects agricultural development and its pace, but here will be mentioned only two, maybe most important one: 1) support to implementation of new technologies and their introduction into the traditional agrarian structure based on the planning of processes; and 2) impact of education and investments in human factor as a new base for the raising of agricultural productivity and systematic increase of yields per ha. Therefore, they are representing the basis for conceptualization and implementation of modern industrial policies in agriculture.

The role of agricultural new technologies

Improvement and spreading of new technologies is one of the key factors that determine the future of agriculture and agro complex. Over the past 150 years, scientists have focused on the development and refining of the selection and breeding techniques. Although considerable progress has been made, conventional selection and breeding are time-consuming and bear many technical limitations (FAO, 2002).

⁵ Concept of balanced development initiated R. Nurkse (1953).

According to FAO, modern biotechnology has the potential to accelerate the development and deployment of improved crops and animals. Marker-assisted selection, for example, boosts an efficiency of conventional plant breeding, because it allows rapid, laboratory based analysis of numerous of individuals, without the necessity for plants growing to stage of maturity in the field. The techniques of tissue culture allow the rapid multiplication of clean planting materials of vegetative propagated species for distribution to farmers. Genetic engineering or modification (manipulating an organism's genome by introducing or eliminating specific genes) helps in transfer of desired traits between plants more quickly and accurately than is possible in conventional breeding. Up-to-date techniques give significant contributions but have also trigger off wider public concerns, as like ethical doubts, solicitude about food safety and environmental protection, as well as frights related to concentration of economic power and technological dependence, which could deepen the technological gap between developed and developing countries.

Good example could be fast spreading of genetically modified (GM) crops. Area under them increased by a factor of 30 over the 5 years period up to 2001, when they were grown on more than 52 million ha (FAO, 2002). According to James, genetically modified organisms and foods produced from them are highly politicized issues that observe the health, economic and environmental aspects. Within the period 1996-2012 the worldwide area planted with GM crops increased few times and covers in 2012 little more than 170.3 million ha (James, 2012).

Significant researches, in order to develop more GM varieties are on-going in some developing countries. China, for instance, claims that follows in the footsteps USA, worldwide leader according to possession of biotechnology research capacity. However, dissemination of GM crops so far is geographically very limited and uneven. Mentioned crops can be found in 25 countries (15 developing and 10 developed countries) but only 8 countries include more than 98% of worldwide surfaces under GM crops (USA as leader with 62.5 million ha is followed by Argentina, 21 million ha, Brazil with almost 16 million ha, India and Canada with 7.6 million ha, China, 3.8, Paraguay with 2.7 and RSA with almost 2 million ha), (Pacic Brankov, Lovre, 2012). Number and type of crops and involved applications are also relatively reduced. For example $\frac{2}{3}$ of the GM area is planted to herbicide-tolerant crops, as well as commercially grown GM crops are usually either non-food crops, as cotton is, or they are quite a lot used as input in animal feeds industry (soybean and maize), (FAO, 2002).

So, in front of scientists is a tremendous work in order to focus on potential benefits and relativize the potential risks. Fast establishment and spreading of new biotechnological applications, along with the insecure public feedback, complicate the possible predictions of long-term benefits related to use of mentioned technologies, having in mind their effects on future production. However, short-term development (up to three years) is quite easier to foresee. The adoption of GM technologies in developing countries will surely to rise. For instance, GM soybean has already covered $\frac{2}{3}$ of the global area under soybean, and its share is even larger in developed countries. Together with expansion of such crops other more sophisticated biotechnology applications may gain importance (e.g. GM-based nutraceuticals or cosmetic applications). Some stances are that after new technologies start to produce a wider range of benefits, not only cheaper foods products and feeds, consumers in developed countries will possibly become fonder to accept them.

Some previous research in Serbia, related to consumers' attitudes toward the GM food, was shown extremely negative public reaction towards GMOs. For example, little less than 20% of respondents has tendency to buy GM food if it is cheaper, but if possess the same taste as traditional one. On the other hand, rejection of GM food is mostly connected to possible harmful effects on human health, along with moral and ethical issues (Papic Brankov, Lovre, 2013). It may be said that underdeveloped countries must raise their knowledge and research capacities to implement new technologies and to choose right way of governing the industrial policies that are relevant to support their further development.

The role of knowledge

It is undeniable that contemporary agricultural technology is permanently bringing hundreds of new solutions for agricultural production, and that is oriented toward the raise of agricultural productivity, so according to that it needs fast industrialization (Higgins, 1959). But on the other hand, at the global level, only a relatively small number of producers are implementing these technologies. Mentioned creates the gap between possibilities and reality (Njegovan, 1992) and actualises the old doctrine that absence of learning produces the poor results in agriculture. Finally, the work of Young (GB), Thaer and Liebig (GER) in XIX century presented agriculture no more as an empirical. That is further improved by the hypothesis that the main reason for differentiation in achieved yields are caused by use of knowledge (Varga, 1924). All that arguments provide the possibility for Theodore W. Schultz (1964) to formulate the theory of transformation of traditional agriculture. He stressed that transformation of traditional agriculture is not investment problem *per se* but

more the difficulty to choose the best way of investment, what is a problem of knowledge. It should be added that the economic problem of society is not only a problem of how to allocate *given* resources, if *given* is taken to mean given to a single mind which deliberately solves the problem set by these *data*. It is rather a problem of how to secure the best use of resources known to any of society members, for ends whose relative importance only these individuals know (Richman, 2012). Or, to put it briefly, it is a problem of the utilization of knowledge not given to anyone in its totality. So it is not difficult to conclude that the quality of the human factor is underestimated and that neomaltusians are not right.

Today we are witnesses of negligence of the role and importance of the constantly increasing man capabilities, as relevant element of progress that is able to compensate and substitute decreased physical capacities of the natural production factors. In this regard, it is particularly important (especially in developing countries like Serbia) to make significant investments in creation and strengthening of human capital. That way it will be avoided a vicious circle of poverty. Investment in quality of population (in increase of the level of their knowledge) could largely determine future outlook of the national agriculture, or complete economy (Njegovan et al., 2012).

It means that investment in education and research in agriculture can be definitely considered justified. Starting from the beginning, it could be said that firstly, permanent care for children, gaining of home and work experience, adequate approach to information, skills overmastering and specialization through training, investment in the health care system, etc. can improve the general quality of the population. Also the criticism to higher education comes into direction that it does not meet expectations in terms of social needs. Elitism is underlined, or even that it causes an outflow of population from rural areas.

In that course there are believes that the quality of education, not politics, is the biggest cause of unemployment among large number of graduates, as education and organized university research are obsolete in many parameters. On the other hand, Zubović et al. (2009) were noticed that unfortunately there is no clear institutional strategy which would define curricula and bring closer formal education with the real market needs in agriculture. Curricula in secondary and tertiary educational institutions oriented to agriculture has to change toward the introduction of subjects like management, trade and marketing, as well as to integrates environmental courses with contemporary knowledge in IT and social sciences.

That way the expectations of producers in agriculture could be formed through new opportunities and incentives on which they want, or are able to respond. It means that from the aspect of agriculture, establishment of competitive and innovative agro-sector can not be done without tight cooperation between public and private institutions, as well as without good communication between government, system of higher education and science, agricultural extension services, primary agricultural producers and processing industry. For example, according to Cvijanović (2009) in Serbia is a lack of relevant functional connection between respective scientific potentials on faculties and institutes as emitters of specific services, and individual farmers, cooperatives and agricultural enterprises as their users.

Good example can be a Knowledge Economy Indicators (KEI), which have been determined by World Bank (WB) for many years. They synthesize a set of indicators and sub indicators for all countries and certain regions, and include: 1) economic relieves and institutional regime⁶; 2) education; 3) efficient innovation system⁷; and 4) structure of information system. WB reported in 2006 that among 30 countries of Central and East Europe and Middle Asia with fairly low KEI scores, according to KEI value Serbia and Montenegro was ranked as 22nd. In relation to value of individual KEI parameters Serbia was the worst in the segment of economic relieves and institutional regime (25th), and the best within the segment of information infrastructure (20th), (World Bank, 2006). Values of KEI for 2012 ranked Serbia on 49th place among 145 worldwide countries. Related to individual KEI parameters, picture is almost the same, the best rank is achieved for the segment of information infrastructure (39th) and the worst within the first defined segment (81st), (World Bank).

As current global economic growth is dominantly based on technical-technological development and knowledge economy, that leads to conclusion that only with full application of achieved knowledge and its prompt transfer through new industrial policies, within the whole reproduction chain in agriculture, could be created high quality, safe and worldwide competitive agricultural and food products.

⁶ It synthesize next parameters: support to investments in information and communication technologies, strength of business environment in order to provide free flow of knowledge, satisfactory and effective legislative, protection of intellectual property, existence and functioning of anti-corruption mechanisms, etc.

⁷ Level of functioning of research institutions, universities and private enterprises network.

Industrial policies in agriculture - reindustrialization paradigm

Industrial policy (IP) of developed countries is directed, before all, to creating of environment for achieving goals and tasks of industrialization, as well as on promoting agricultural growth and efficiency. The main goals of such policies are compatible with other goals of economic development. They must contribute to the general economic growth, financial stability, improvement of positions within the balance of payments, full employment and improvement of prosperity. Towards economic policy they can have positive and negative approach⁸. Reindustrialization is procuring new equipment and implementing new knowledge based techniques for better employment, so in this situation, IP in agricultural practice is oriented toward many segments.

Investigation of Kilkenny and Schluter (1993) can be also interesting. How public support to agriculture in the USA includes many different approaches (from spending on agricultural research and extension to direct income transfers), they wanted to prove what can be the better rural and agricultural development policy, public spending for agricultural research and extension, or equal amount spent for direct income transfers to rural households. Starting from the facts that greater economic activity implies expanded consumption and higher national income, as well as investment and less unemployment, by appliance of *computable general equilibrium (CGE) model*⁹ they concluded that investment in agricultural research and extension will result higher productivity, what will be more effective way to stimulate the rural economy.

Realization of IP issues mainly depend on whether the instruments actually work in practice. Furthermore, it is important that IP instruments and procedures are not too complicated, that they are easy to manage and that their implementation does not make high additional costs. So, establishment and carrying out the goals of IPs are highly complex issue which implies numerous actions taken in many segments. Coordination and integration among institutions and organizations are highly important. The IPs of developed countries can be observed as paradigm, above all those from the EU and certain countries of Eastern Asia (Njegovan, 2012).

⁸ Positive approach pertains to stimulation of new industries or new products and processes, while negative approach fosters abandoning of outdated resources and technologies in individual productions.

⁹ Inter - American Development Bank defines CGE model as one of the most precise quantitative methods for evaluation of the impact of policy reforms on the whole economy (irreplaceable tool for policy establishment). Model realistically reflects economy structure, as well as all ongoing economic transactions among different economic agents, underlining the broader set of economic impacts derived from the implementation of certain policy reform. It is peculiarly valuable when the expected effects of policy implementation are complex.

Industrial policies in EU after Lisbon strategy

The IP of the EU can be presented as a set of certain activities in countries that have established a goal recognized in achieving of industrial changes by incentives that promote production of specific industries, or stimulate entering and exiting a market with specific industrial products. It was developed through many phases, from sector protectionism to horizontal support and clearer promotion of competitiveness, i.e. from passive to active IP.

While the European Economic Community was switching from the passive to active IP integration, the importance of supranational IP was constantly growing. After all, along with worldwide globalization, economic and political domination of USA, highly competitive Japanese industry, as well as China's transformation into a new economic power, EU recognized need for the new and improved approach to establishment of IP, what began as a product of the Lisbon Summit of the European Council in 2000 (Njegovan, 2012).

Strengthening of EU competitiveness and its potential for the industrial growth is based on next goals: 1) broader and more efficient use of new information technologies and creation of European area for research and innovations; 2) finalization of establishment of common EU market; 3) establishment of efficient and reliable financial market; 4) strengthening of entrepreneurship, particularly SMEs and promotion of employment; 5) skills and social protection system improvement; 6) sustainable development that ensures better quality of living. The established IP includes a set of proposals that can affect rise of IPs efficiency, as are: 1) Improvement of regulatory environment that will directed sector of industry towards security, health, environment and consumer protection; 2) Strengthening of innovative role of SMEs; 3) Financing of Community projects, before all industrial projects that include trans-European networking and projects whose aim is public interest harmonized with industry; 4) Use of structural funds to provide industrial competitiveness within the economically marginalized regions; 5) Establishment of expert groups that will try to interconnect all industrial branches; 6) Financial prospects. So, creation of a common IP was the key element for successful economic development that includes achievement of high level of industrial products and services competitiveness, as on internal market, as well as main foreign trade markets (Njegovan, 2012).

State of IP in agriculture of Serbia and prospects for its reindustrialization

Development of national agro-complex was strongly influenced by the implementation of respective IPs. Their lack or inappropriate implementation in previous period has driven agro-complex from the level of average developed to undeveloped sector of economy. General limitations in IPs development are recognized in (Njegovan, 2012): a) Formerly, agriculture was mostly leaned on imported technological solutions, that affects strong economic dependence on some countries; b) Import of food processing technologies was usually non-selective, so it pushed agro-complex into a growing instability; c) Licensing, utilization of trademarks, rapid transfer of know-how, technical assistance and common investments were generally harmful to the domestic producers; d) Weak cooperation between domestic companies within the agro-sector leads to situation that for a couple of decades the competitive struggle has been happened usually between foreign companies present in our market; e) Most of companies were based their economic power on transferred/foreign IPs; and f) For a long time different treatment of private and social sector of agro-complex caused sometimes diametric approach to the research and technological development.

In a favour of previously mentioned, being that the industrial policies are related to the comprehensive economic policy, there is also a need to present a certain limitations concerning rural development and agriculture in Serbia, which can represent a possible basis for future priorities setup (Njegovan, 2012): 1) Overstated role of agriculture in rural development; 2) Extrication of agricultural policies from macroeconomic policies; 3) Keeping of strong state position within the food chain (throughout monopoly storage enterprises, state marketing channels, state regulation of foreign trade and prices and use of resources), (Njegovan, Bošković, 2006); 5) Slowness of land reform hinders normal functioning of the land market and land tenure; 6) Privatization without setting right of market imperfections; 7) Lack of stable and continuous policy approach - often unclear, changeable and confused policy measures caused much uncertainty in agricultural production; 8) Lack of greater experience with market economy - need for establishment of functional market institutions and elements of market infrastructure, larger support for R&D activities, as well as further development of food safety and security system. According to mentioned, the agriculture is still using extensive industrial policies. The initial framework of the reindustrialization can make a space for the efficient industrial policy.

As state Stevanović et al. (2013) within the last two decades was marked the absence of investments in national economy (industry in particular) followed by rapid deindustrialization. Currently, share of industry in the Serbian GDP is at

the level of sixties of previous century, or the level of industrial production is on the level of 40% of the one in the 1990s. Further deindustrialization will lead to more pronounced structural disturbances, so reindustrialization is absolutely necessary in current phase of economic development, what is also confirmed by experiences of many East European countries (Czech Republic, Slovakia, Hungary, etc.) that have already passed the same way.

Recently, National council for economic recovery initiates an establishment of *Reindustrialization strategy of Serbia*. In mentioned document is expressed that reindustrialization is seen as a critical project not only from an economic, but also from a political perspective. Previous experience showed that sustainable economic development and political stability, at this level of economic development, are based on tradable goods and services, i.e. on the real economy (industry and agriculture). So this activity requires the creation of new economic environment and change in the way of conducting the policies within the sectors with comparative advantage, or sectors which potential for growth lies in available resources (mineral resources, fertile land and skilled labour force), accessible and favourable sources of financing and position rent, what together may drive the output growth. For Serbia this sectors are recognized in energy sector, agriculture, food processing industry strongly linked with agriculture and metallurgy. According to proposed Strategy, the first step in the elimination of output gap through expanding production in mentioned sectors will be finding of strategic partners that would be interested to buy equity in state companies from energy sector, agriculture, food processing, logistics and infrastructure. Also, industrial development and boosting of aforementioned sectors will highly depend on the Serbian accession to the European Union and EU technology platforms.

Along with creation of functional relations among entrepreneurial, research, educational and public sector, goals of national IPs in next period should be turned to (Njegovan, 2012): sustainable industrial growth and development; proactive role of the government and unemployment reduction; better balancing among stabilization, developmental and social function of the state; strengthening of entrepreneurial initiatives, primarily SMEs; diversification and boosting of export activities; advancement of investment conditions and initiation of stronger competitiveness; harmonization of educational system with the real market needs; proactive cooperation between the sector of science and industry, along with greater innovation activity supported by all economic and social stakeholders; further improvement of economic regionalization; better respond to energy efficiency and ecological issues; etc.

During the process of national agro-complex modernization, beneficiary of high tech achievements should be deeper involved into the developmental processes, so they have to possess certain background and adequate technological skills. Their proactive approach needs constant focus toward contemporary achievements and practical validation of achieved results. So, one of the most important factors of development of agriculture, and indirectly of complete economy and society, has to be development of advanced technologies by domestic scientific potentials and transfer/import of know-how (information about unpatented findings, procedures and methods, along with skills and experience that possess staff of licensor firms which transfer will enable competitive advantage of our products and production cycles). Reindustrialization and IPs establishment and implementation have to arise into the mutually coordinated process between public and private sectors, as well as between production-services and scientific-research sectors. That will accelerate reaching of more effective development of complete agro-complex.

Conclusion

Today, the role of science and technology considers before all knowledge and capability of individuals, as well as whole countries to implement the right concept for their faster and more efficient agricultural development. This means more balanced development based on reindustrialization and implementation of new industrial policies. Synergetic effects that reindustrialization mutually requires and produces, impose the importance of knowledge, what was the reality within the last few centuries. Agriculture is not only empirical economy branch. Modern society is a priority for Serbia, as well as expressing of needs for human innovativeness. In that sense, balanced sustainable development of agriculture and human wellbeing needs some prerequisites, as like:

- enabling long term relations between research activities and organizations, based on strengthening of potentials and competences of science and research system;
- increasing of investment in education and technology development and implementation;
- improving the quality of research results by the strengthening of educational and scientific contribution to the competitiveness of agricultural enterprises;
- development and strengthening of scientific-research infrastructure;
- encouraging the networking with globally recognised partners (scientific and technology centres); etc.

In any economically and socially advanced system cooperation within the area of ideas, people and existing capacities has to be crucial. That could initiate overcoming of the gap between the critical science and technology resources. Way to go ahead is turned to new industrial policies, which have to be established and implemented along with further programs of knowledge strengthening what require quite long period to show certain trace of progress.

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