

Czech LETS (empirical study on local complementary currencies in the Czech Republic)

České LETS (empirické zkoumání případů lokálních doplňkových měn v ČR)

L. ZAGATA

Czech University of Agriculture, Prague, Czech Republic

Abstract: The presented theoretical reflection of the institutionalization of money shows that the given features of money are always linked to certain social conditions. Nowadays there are visible several attempts to establish local currencies, which would work as a complement of national currencies and which be able to fulfill other functions than the purely economic ones. The circulation of the “own” currency brings all kinds of benefits to community members. The goal of this work is to elucidate in empirical perspective mechanism of the local currency systems operating in the Czech Republic. Results of the research show a peculiar form of the LETS, which tend to divert from the rather formalized trading systems known in the Western Europe.

Key words: LETS, complementary currency, money, economic transaction, regional and social development

Abstrakt: Předložená teoretická reflexe institucionalizace peněz ukazuje na sociální podmíněnost podoby peněžního systému. V současné době existují některé pokusy o ustavení lokálních měn, která by fungovala jako komplement k národní měně a které by byly schopné plnit i jiné funkce než čisté ekonomické. Cirkulace vlastní lokální měny přináší členům komunity mnoho různých výhod. Cílem této práce je osvětlit v empirické rovině principy fungování lokálních doplňkových měn v České republice. Její výsledek ukazuje na svéráznou podobu LETS, který svým charakterem diverguje od formalizovaných směnných systémů známých v západní Evropě.

Klíčová slova: LETS, doplňková měna, peníze, ekonomická směna, regionální a sociální rozvoj

INTRODUCTION

A modern man possesses a clear notion of what the money is. This idea is taken for granted and therefore it may seem that there is not much room for any speculations that one could use some other thing as the money. Nonetheless, this paper shows that at the time there are several examples in modern society, challenging the higher mentioned notion, to establish a non-conventional currency that significantly differs from the modern money.

The main subject of this work is the phenomenon of local currencies, which is spreading in many places of the world, including the developed western-European countries and the Czech Republic. The gist of this idea is a social construction of alternative institution of money that could circulate on the local level as a complement of the official currency and that could,

due to its immanent characteristics, be able to perform other function than the conventional money. The aim of this work is to (theoretically and empirically) elucidate the principles of the local complementary currency and point out main differences from the conventional money (considering qualities, as well as conditions and consequences of the use of the complementary currency). Conceptualization of this issue is based on the work that was recently published in this journal. This fact allows us to mention only the main arguments of the previously presented work (Zagata 2004) and so to step forward and aim at outcomes of the empirical work. The analysis presented in this work deals with specific cases of the complementary currency systems in the Czech Republic. Its goal is to provide a comprehension of this phenomenon on empirical level within the cultural context of the Czech Republic.

This issue of local complementary currencies finds its place in the endogenous development model (Lowe 2000). However, this paper does not aspire to answer the question of how the local currency systems contribute to regional development. Due to its focus, the paper rather states the empirical information on the specific form of the Czech examples of local currencies. Only on its basis, one is (eventually will be) able to answer the question of the relation to the regional and social development.

METHODOLOGICAL REMARKS

The empirical work combined several techniques of data collection. The majority of the fieldwork was carried out in fall 2004. It consisted of semi-standardized interviews with members of three local currency systems in the Czech Republic. The presented description and analysis is founded on transcripts of the interviews and acquired documents dealing with activities of the members (flyers, formal rules, advertisements on goods and services that are traded within the communities and others).

THEORETICAL ASSUMPTIONS

Every single form of money represents a distinct way of institutionalization of people's transactions. In the past, there were all different kinds of money, which served as a mean of payment for monetary exchange (i.e. not a barter that represents a transaction without use of money). Pre-modern society was also typical of the existence of more kinds of money that were simultaneously circulating in a locality. Authors, who tackle the issue of the origins of money (Douthwaite 1996; Galbraith 1975; Lietaer 2004 [2001]) usually describe the development from the commodity money (such as grain, tobacco, oil, precious metals and others) through fiduciary money (i.e. paper money issued by a bank that stores the reciprocal value of the money in gold) to fiat money (created with bank deposits). This view implies two important points. Firstly, one can see that money was spontaneously developing with the contribution of evolutionary mechanism of selection and, secondly, monetary regimes were changing with regard to societal conditions and purposes that

the money had to serve to. Hence money represents through and through a historical phenomenon, which implies an important conclusion that money still stands out to another development. The development also includes the presented examples of different kinds of local complementary currencies.

Since its creation, modern money has been developing in order to propel "the project of modernity". Its obvious features comprise of the facts that (1) use of particular money is bounded to a national state,¹ (2) works as a fiat money that (3) is created on the basis of bank deposits and so (4) it cannot normally operate without the institution of interest. This characteristic makes money to perform functions that are linked to the economic system, i.e. the money is considered as a mean of exchange, unit of account and store of value. Those qualities of money come to reason, albeit they are just apparent, while, as Lietaer states, "there are perfectly efficient money, which have not performed some or even none of those functions" (2004 [2001]: 49). The idea of local currency construction stems from the criticism of current monetary systems and global economy in general. This approach usually uses the arguments pointing out the facts that the current monetary system is too volatile, that the speculation function of money stands out and that money at the same time fails to perform other functions – in spite of being the basic ones. For complete argumentation see Douthwaite 1996; Gray 2002; Korten 2001 [1995]. One of the results of this criticism is a search for theories solving the unfavorable state of the monetary system. From about the 80's of the 20th century, this effort expresses in many practical attempts of local societies that start their experiments with the complementary currencies.

Contemporary complementary currencies draw on several sources of inspiration, which are more or less reflected in their form. The main inspiration comes from the 30's of the 20th century and is related to societal response on effects of the Great Depression in Europe and North America. Douthwaite (1996) and Lietaer (2004 [2001]) tell about many examples of the local currencies operating in those times.² This movement of "auxiliary money" was a response to the failure of the conventional money to perform its functions. The objective of the movement was to set up another currency that would facilitate economic activities.

¹ This feature of money is not universal since the creation of European Monetary Union. On the other hand this fact support the higher mentioned assumption about a continuous development of money.

² (1) The *Wära* system in German town Schwanenkirchen, set up in 1931, (2) stamp scrip *Wörgl* from an Austrian town of the same name, set up in 1932, and (3) one American of Zylstra's system of stamp scrip that was established in Hawarden, Iowa in 1932. Those are just the mostly cited examples – "stories" of the local currencies.

Complementary currencies were re-invented in the 80's of the last century and since that they are spreading all over the world. One can evaluate their occurrence – often linked with all kinds of (mostly environmentally oriented) movements – as a response to certain negative effects of the intensifying globalization processes. In comparison with the great-depression currencies, which were motivated by economic needs of the local societies, the contemporary examples primary stress social and environmental benefits, secondary the economic benefits. Since the 80's of the 20th century, several types of complementary currencies have taken shape. Let us divide them into three basic groups. (1) LETS³, (2) time currency and (3) WIR scheme. With regard to number of cases, the LETS can be classified as the most successful one. The first LET system showed up in Canada at the beginning of the 80's. The idea then spread to other countries (New Zealand, Australia, Great Britain, France, Ireland and recently also Central and Eastern Europe – Poland, Slovakia and others).

LETS is based on construction of non-commodity local currency, which is used (as a complement of the official currency) for trading goods and services among members of a given community.

When the transaction is realized, the supplier gains on his/her account a credit based on the value of the exchanged commodity, and the demander is charged the reciprocal value. Proponents of those schemes argue that the money is created by exchanging (Douthwaite 2003; Lang 1994) and therefore its amount is not limited. The money is created when the transaction occurs and its creation is based on the existence of a quantified claim to pay back the reciprocal value (of the transaction) to any of the community members. As a medium, i.e. the mean of payment, then can be any-thing, what is confirmed by the community members. The currency is backed up only with the will of the members to settle their claims to their community. What is the common denominator of the local currency systems is the so-called mutual credit, which represents a specific type of transaction enabling to realize an economic transaction “without money”. Trust of the community members overcomes the limits of barter, because a member, who is being in a commitment, can pay back to anyone from the community, just like in case of money. In comparison with the pecuniary exchange, this type of exchange – based on the mutual credit – has got the advantage that it is possible to acquire a commodity without having a property, just due

to the existence of belief in the possibility that the claim will be paid back in future. Barter is in fact a type of exchange, where there is no trust present, the monetary exchange requires a trust in the used medium of exchange and finally the credit exchange represents a system, in which traders trust each other (Anderlini, Sabourian 1992).

The local currency differs from the conventional one. Due to its qualities, it can perform some extra functions. Firstly, it solves the problem of shortage of money in economy that is a typical feature of modern money and that can (under certain circumstances) limit economic transactions. In comparison to the “insensitive” monetary exchange, the use of local currency creates a qualitatively different relation between the participants. This tie is strengthened by the principle of reciprocity that is similar to “gift economy”, described by Mauss (1999 [1925]). According to him, the credit has developed from the institution of gifting. All types of local currencies are balancing (just like in the case of the “gift economy”) between avariciousness and solidarity, which is visible with overlapping of economic and social benefits assigned to operating systems. From this point of view, local complementary currency systems represent a hybrid of modern and traditional economy, in which, according to Polanyi (1967 [1944]), social relations are embedded in economy (while in the modern times, the economy is embedded in social relations).

LETS IN THE CZECH REPUBLIC

There have occurred several attempts of establishing local community currency, which would work as a complement to the official currency in the Czech Republic. In accord with the often-cited fact that each currency system represents a distinctive form derived from the ideal type (captured in literature), there have emerged social forms that reflect Czech specifics, various sources of inspiration, peculiar intentions of coordinators, motives and activities of participants, including their lifestyles, and other (more or less visible) factors. In stake of the empirical work, the author focused on three representatives of local complementary currency systems, which were operating in the Czech Republic in the year 2004. The researched object has namely included LETS located in Prague, Southern Bohemia and Brno. However, one cannot outcast the possibility that there might be more operational representatives.

³ The acronym LETS mostly refers to Local Exchange Trading System. Sometimes the word Exchange is swapped with Employment or Enterprise.

All of the researched cases of LETS have their origins in the late 90's of the 20th century. What else they have in common is the fact that they are somehow related to activities of environmental organizations. The Prague LETS is (on personal level) linked with the agency GAIA, the Southern-Bohemian LETS with the environmental organization Rosa (Dew) and the LETS in Brno (called Rosemary) is related to the association Permaculture.⁴ The ideological link is mostly visible in case of the Brno LETS, because its members consider the model of LETS to be a part of the permacultural design (i.e. such organization of human activities that respects sustainable way of living). The Prague LETS draws on personal experience of one of its current coordinators, who has been impressed with the complementary currency system in Frankfurt am Main in Germany.

Organizational form

All of the researched groups have got about 40 members. However, these figures do not allow us to use them for a comparison of their sizes, due to the fact, that each group possesses a relatively large number of "dormant members", who may even dominate. All of the researched LETS have grown up from small social groups tied to the environmental organizations. Other members have been obviously recruited after the mobilization of personal social networks of the elder members.

Within the frame of the LETS, which connects the individual social networks, members know each other. But personal collective meetings take place only in case of the Brno. This LETS is also the most closed one of all the groups, because only the kith of current members can join the group. The Southern-Bohemian LETS is, due to its sporadic social networks, structured by areas – "for instance members of the branch in Český Krumlov know each other very well, the branch in Tábor and in Budweis, and between them are dispersed other single persons" (SB). The Prague LETS seems to be the most opened one, albeit joining of new members has led to a situation that current members refuse to trade with the newcomers, or they addressed their coordinator in order to convey the trade with (so far) the unknown person.

The used research method does not allow identification (on a sufficient level of generalization) of the participants' motives. Nonetheless, one can observe that environmental motives lag behind – comparing

to the economic and especially social motives for participation). By this, it is meant that the trading system, due to its small scale, has not build up inclusive alternative of how to satisfy everyday needs in an environmental-friendly way. But still, a large amount of the traded goods and services is related to environmental-friendly way of life. This fact can be seen as a consequence of the prevailing life style of the community members, rather than an expression of the environmental motives for taking part in the LETS. Members' acts aimed on acquiring goods and services through the LETS are not based on the principal of formal rationality, what more, it is usually in contradiction with this principle. Despite this fact, there are visible certain examples of individuals, who stressed the economic motive – at least in a certain periods of their membership. This fact is proved by the interview with one of the members of the Southern-Bohemian LETS: "It might be about one third (of members) that was interested in the LETS in the economical way. Those "life radicals", whose incomes were so low that it could have really helped them" (SB). Acquiring products through the LETS accords with economic rationality when the value of free time is lower than the value of the product, which can be gained. Otherwise, it is rational to earn official currency in the labor market and conventionally acquire what is needed. What seems to be the most important motive for participation is the social motive, despite that fact that it is very hard to portray it in "guide books" that describe benefits of LETS. The Prague LETS presents itself with the sentence: "Lets help ourselves!" (as one can notice in some of their documents) and due to its form, it takes shape of volunteering. The main benefit is then the meeting of new people, who one can ask for a help. The more-closed LETS in Brno uses the trading activities as a mean how to keep up social relations between members who are going well along – the exchanges serve as an "opportunity to meet up" (BN).

All of the groups posses formalized rules dealing with rights and duties of their members. At the same time, there were observed no cases of actions that would violate the rules of particular community. None of the groups has formally included in its rules the norm regulating the maximum level of a member's debt.

Local currency and realization of transactions

All of the communities keep 1 : 1 parity with the official currency (CZK). The exchange rate of the

⁴ From now on there will be used the following abbreviations for the three LETS's: Southern Bohemian – SB, Brno – BN, Prague – PH.

complementary and official currency determines formal pricing of realized trades, which is important due to official taxation. However, it is only the Southern-Bohemian LETS that explicitly deals with the problem of taxes – it briefly informs its members in what way are their incomes subjects to taxes. An interesting part of the each LETS is the construction of prices. In case of the observed communities, the prices of the exchanged products are the matter of negotiation between the trading actors. Raw materials that were used for making particular product are usually paid with conventional currency. In case of services or products (which were directly made by members), there is priced only the amount of work, based on its duration. Considering those features, the LETS in Brno and especially the Prague LETS take shape of the Time Bank project, but their form is not consistent, because the time-units differ in their values among the members.

Transactions that have been realized are registered on computers. Large part of members' communication (news, state of account, advertisement on goods and services) is carried out by e-mail.

People in the Prague LETS trade more services than goods. In case of the Southern-Bohemia and Brno, the shares are approximately equal. Activity of members, measured with the number of transactions, is much less than at LETS operating abroad (for instance the Czech LETS in Brno registers about 40 transactions per year). It is important to note that a part of the total amount of exchanges is realized without a record on members' accounts. Operating of those groups therefore constantly balances between exchanges, which are carried out in accord with the community rules and which include use of the complementary currency, and (informal) exchanges on the base of gifting. This seems to be a crucial point for comprehension and evaluation of the Czech varieties of LETS.

Monetary transaction can be (with reference to Georg Simmel) characterized as a typical form of interaction in modern society. Historical shift from *Gemeinschaft* to *Gesellschaft* corresponds with the shift from natural to monetary transaction in economic field. LETS step in the opposite direction of this transition, however not completely, and their members aspire to alter monetary transaction with another type of interaction, which is based on principle of particularity and which strengthens unity of constituted social groups. Their members are consequently willing to confine their own interest. This type of acting, which is in contradiction with acts based on expecting equal-value in return, illustrates the motto of the Prague LETS or the definition stated in the rules of the Southern-Bohemian group: "Letokruh

[name of this LETS] is a free association of people in Budweis and its surrounding, who want to help each other." This frame constitutes the in-group and sets boundaries of the particular community.

Purely informal social relations, which bring trust, solidarity, altruism and liking, can hardly exist within large social forms, in which can LETS grow. Those large LETS's are forced to formalize social norms and use formal instruments of social control, in order to secure conformity of community members. The observed cases are, however, examples of small social groups that lack this type of formalization. Due to this, the Czech LETS have not imposed the rule about the maximum level of debt and in general, they put less stress on formal rules. On the raised question, whether the LETS have got rules in the written form, there was the answer – yes, of course. And later on followed this: "In fact, those aren't real rules, it's rather a philosophy that nobody can be forced to do something, or that nobody can't be mad at someone else, because he/she refused to do something for him" (BN). On the other hand, this situation does not allow us to assume that the observed groups have less social control available. They just apply different means. In contrary with the large groups in Western Europe, none of the Czech groups is too concerned about the problem of taxation. This attitude implies on size of groups and especially low amount of turnover as a result of low activity of members.

Membership in LETS as an example of ecological luxury

The current form of the observed LETS, including their underdevelopment, is largely determined by the circumstances of their establishing and by character of social groups (i.e. their closeness). As one can see, operating of the LETS is inhibited with sparse social networks, because the current groups have grown from informal social groups related to the environmental organization. Spatial distribution of the members unlikely collided with activities of those organizations. However, it is not suitable for operating the LETS, because it increases transactional costs, which can after all reach a prohibitive level. For instance the Southern-Bohemian LETS was founded by members of the environmental organization Rosa, who were located in the range of 30 km. Considering this, exchanging through the LETS is becoming irrational from the economic point of view, as shown by the following example:

"If one wants to have pears and doesn't have much time, than he gets them at a marketplace, but the one,

who has got time, can take a backpack and go for them by bus to Křtiny. If you count it all together, and we go there both [with a husband – LZ] than the backpack full pears costs us about 150 Czech crowns [which is a lot of money – LZ]” (BN).

From what point of view, do those acts – aimed at acquiring products through LETS – make sense?

The above-mentioned example of acting may be interpreted by the use of a concept of ecological luxury (Librová 2003). By this, there is meant a behavior, which consciously lowers ecological footprint and at the same time it is connected with a certain limitation of self. Despite the higher costs, acquiring of pears that were locally produced and distributed in environment-friendly way, is an example of ecological luxury. An aspect of luxury originates from the fancy free time, that represents a very scarce product in modern society. Spending the time the way that concentrates economic ineffectiveness means a personal limitation (more Enzensberger 1997 in Librová 2003). No matter how the categories of luxury (i.e. what we consider to be luxurious) modify in time, the importance for social status making remains. This is valid also for the community members, where this type (of luxury) conveys with their value orientation that includes environmental principles. One can assume that it is not only the aim at the ecological luxury, which provides the status-making function, but simply the membership in the community. Some of the observed LETSs have got many inactive members, who do not trade, but still strictly insist on keeping their membership. The ecological luxury, as Librová states (2003), also includes a striking social dimension, which is expressed in a form of civil altruism. This principle is visible at the Prague community, where economic motives lag behind and where the participation on LETS represents an alternative for a volunteering that is “too over-organized” (PH).

Considering the above-mentioned facts, we have come close to identify the specifics of the Czech varieties

of LETS. In order to make their picture complete, it is important to note that all of the observed groups have got troubles to keep up relations on the basis of formally registered transactions via mutual credit, albeit it is a defining feature of LETS. The formalized recording of transaction is an objection for small social groups (which make the core of the observed communities) and therefore a part of members constantly tend to realizing transactions without the formal registration, i.e. without the use of the local currency. This inclination appears at the elder members of community and probably deals with a qualitative change of social relations, as is illustrated by the following excerpt of an interview: “As soon as they make the acquaintance of others, they started to trade on their own and (...) stopped recording the points. They’ve become friends and so don’t need the LETS anymore” (PH). According to this statement, one can see that the local complementary currency is being perceived as a mean of payment that mediates the undesired form of interaction among the members. In this sense, it comes close to money that represents the opposition of the community order and that contradicts nature of the community life.

Operating limits of LETS

At the end we come to the problem how to identify the social formation of the Czech LETS. Is it possible, due to some of the peculiarities, to label those cases as representatives of the local currency systems? And if not, what else could it be?

The nature of social relations among the members is related to the size of a given group. In small social formations, which are structured like small social groups (with existing network of interpersonal relations), social motives for trading prevail. The outcome then takes the shape of an institution of neighborly (or friendly) help. Economic motives step behind.

MOTIVES SCALE	ECONOMIC	SOCIAL
SMALL		neighborly help, self-provisioning
LARGE	LETS	

Figure 1. Delineation of institutions according to the size of a formation and prevailing type of motives of acting

Note: This delineation is inspired by the categorization of sectors in national economy, presented by David Ross (1985), who studied informal economy

This institution is not strictly formalized and social relations between acting individuals do not permit realization of monetary transaction, including the cases, when the mean of payment becomes a local currency.

The Figure 1 illustrates that for the organizing LETS, there is needed a large social formation that is typical of a formalized character and where close relations prevail. This form of collectivity enables to realize transaction with the use of local currency, i.e. to reduce personal engagement of actors and get closer to the principle of formal rationality.

CONCLUSION

With regard to the objectives of this work, we have briefly described transformation of the institution of money. Features of the modern money convey with its economic function that the money has to perform within the frame of modern economy. Usage of the modern money shapes social relations and influences actions of individuals, because the modern monetary system propels constant competition among actors. The creation of the local complementary currency represents an effort to alter the impersonal monetary transaction and set up self-reliant localities with considerable social and environmental connotations. Complementary currencies are expected to provide communities with values, which conventional money dispels. It appears that this radical recast underlines the symbolic and ideological potential of the complementary currencies.

In order to explain the origins of the complementary currencies, it is necessary to consider a broader context. The historical representatives of the complementary currencies, which occurred during the Great Depression in the 30's of the 20th century, can be interpreted as a response to objective economic problems. Re-inventing the local currency systems in Europe in the 80's of the 20th century is only partially linked to the state of economy. Their proponents often challenge impacts of economic globalization, but also the fact related to the problems of community-life in the modern individualized society.

Advocates of the local currency systems often draw on criticism of the nature of modern economy and modern society in general. By this, it evokes an idea that the local currencies represent a cure for society by the renaissance of certain traditions within the modern society. The combination of economic and social motives of participants and the necessary existence of specific social relations among the community member, this all constitutes a rather fragile

institutional structure that confines the existence of the complementary currency systems. Despite, this there are many examples of local complementary currencies (mainly LETS) that operate on a large scale out of formal economies.

The shape of the Czech representatives significantly reflects circumstances of their establishing (original links with organization that had worked on a different basis), character of the social groups (closeness), sparse social networks and domination of close relations among members. As a result, transactions based on the neighborly help have a higher turnover than formalized transactions through the LETS. Under those conditions (which seem to be reasons as well as consequences of their forms), there prevail uneconomic motives for cooperation, which exclude the usage of local currency in a large scale, just like in the Western Europe. If the Czech attempts represent peculiar examples of ecologic luxury, their growth will depend on civic engagement of people.

In fact, the observed cases only partially innovate the ancient institutions of neighborly help that has got a strong constitution in the Czech Republic. The current form of LETS's provides certain benefits to their members. Those pros are of a different type than those which are usually related to LETS operational in the Western Europe. However, it does not downgrade their significance for the life of community members as well as for the society in general, whose culture is being enriched by it.

REFERENCES

- Anderlini L., Sabourian H. (1992): Some notes on the economics of barter, money and credit. In: Barter Exchange, and Value: an Anthropological Approach. University Press, Cambridge.
- Douthwaite R. (1996): Short Circuit. Strengthening Local Economies for Security in an Unstable World. Lilliput Press, Dublin.
- Galbraith J.K. (1975): Money: Whence it came, Where it went. Houghton Mifflin, Boston, Massachusetts.
- Gray J. (2002): Marné iluze. Falešné představy o globálním kapitalismu. Paradigma, Košice.
- Korten D.C. (2001 [1995]). Keď korporácie vládnu svetu. Paradigma, Košice.
- Lang P. (1994): Lets Work. Rebuilding the Local Economy. Grover Books, Bristol.
- Lietaer B. (2004): Budoucnost peněz. Vytvářet udržitelný blahobyt, pracovní příležitosti a rozumnější svět. Paradigma, Košice.
- Librová H. (2003). Vlažní a váhaví. Kapitoly o ekologickém luxusu. Brno.

Lowe P. (2000): The Challenges for Rural Development in Europe in From Production Agriculture to Rural Development: Challenges For Higher Education in the New Millennium. In: Proceeding of the 5th European Conference on Higher Agricultural Education Conference 10–13 September, 2000. Seale-Hayne Faculty, University of Plymouth. UK. University of Plymouth, Plymouth: 19–31.

Mauss M. (1999 [1925]). Esej o daru, podobě a důvodech směny v archaických společnostech. SLON, Praha.

Polanyi K. (1967 [1944]). The Great Transformation. The Political and Economic Origins of Our Time. Boston: Beacon Press.

Zagata L. (2004): Complementary currency systems as a source of endogenous development of localities. *Agricultural Economics*, 50 (10): 477–484.

Arrived on 18th April 2005

Contact address:

Ing. Lukáš Zagata, Česká zemědělská univerzita v Praze, Kamýcká 129, 165 21 Praha 6-Suchbát, Česká republika
tel.: +420 224 382 311, e-mail: zagata@pef.czu.cz
