

Supporting the sustainable development of non-timber forest product enterprises in Russia



Report for the Taiga Rescue Network and FERN within the framework of the project 'Sustainable Rural Livelihoods and Community Involvement in Management of Russia's boreal forests' with financial support from the Ford Foundation.



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March 2009

This is a project of the Taiga Rescue Network, supported by FERN and with financial support of the Ford Foundation

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Acknowledgements

Much of the material presented in this report is drawn from interviews with forestry personnel, NTFP enterprise proprietors and NGO staff during the author's study tour to Russia 20-28 January 2008. This trip was financed by the UK Department for Environment, Food and Rural Affairs under a Darwin Initiative Scoping Award and was principally concerned with the preparation of a bid to Round 16 of the Darwin Initiative. During the trip the author was accompanied by Katy Harris of the Taiga Rescue Network who provided invaluable assistance with translation both of the language, forestry context and culture of Russia.

The author gratefully acknowledges the hospitality, patience, time, information and insights provided by everyone encountered in Tomsk, Krasnoyarsk and during the TRN NGO network meeting in Novosibirsk. However, the author takes full responsibility for the content of the report and any misrepresentation or deficiencies herein.

Abbreviations

FAO	Food and Agriculture Organisation (UN)
FSC	Forest Stewardship Council
MAPs	medicinal and aromatic products
NGO	non-governmental organisation
NTFP	non-timber forest product
NWFP	non-wood forest product
RF	Russian Federation (1991 – formed from the RSF)
RFE	Russian Far East
RSF	Russian Socialist Federation of the USSR (1922 - 1991)
TRN	Taiga Rescue Network

Organisations

Leskhoz	Responsible for forest management and regulation until 2006
Lesnichestvo	Regionally accountable forest management authority from 2007
LesPromKhoz	State complex enterprise for logging and timber processing until early 1990's
GosPromKhoz	State complex enterprise for hunting, trapping and fishing until 1990
CoopZverPromKhoz	Co-operative locally-owned and operated hunting enterprises
Tsentrosoyuz	Consumer cooperative movement 1831 to present (http://www.rus.coop/)

Executive summary

Russia has a long history of NTFP exploitation and during Soviet times operated a vast, centralised supply system for forest foods and medicinal herbs. Food resources (e.g. berries, nuts and mushrooms) were harvested from specially designated forests which were protected from logging and managed for NTFPs by the GozPromKhoz. Processing was done by large and small enterprises and a wide range of traditional products filled shelves in urban and rural shops. NTFPs were also used as industrial raw material e.g. turpentine-based paint and in the pharmaceutical industry as a basis for herbal medicines. Much of this activity came to an abrupt end in 1991 and during the subsequent period of austerity people resorted to personal collection of forest foodstuffs to supplement meagre incomes and for food security.

At the present time rural employment and subsistence use of NTFPs remain high. However, compared to the size of the resources and previous exploitation levels current harvests are small. Previous experience suggests that NTFPs can be exploited compatibly with forest conservation for resources (e.g. berries) sensitive to disturbance or as a secondary product alongside timber. Also in Soviet times centralised NTFP supply chains supported rural employment and even opportunities for small scale enterprises to the advantage of local communities. There is increasing interest on the part of regional forestry authorities to re-instate some form of centralised supply chain to provide income opportunities to rural communities. The review suggests that there is significant scope for NTFPs to be a valuable large-scale resource to rural communities, able to compete with timber felling in some areas and that this is an under-developed opportunity.

A UNDP study identified 'traditional nature use' as the only option for sustainable development in Tomsk Oblast. The scale of the forests and the volumes of product required to achieve development targets suggests that it may be appropriate to promote large-scale rather than small-scale enterprises. If these are to be single enterprises then their real value to local people must be ensured. An alternative model is that arising in Tomsk where several smaller companies invest in a shared, central storage and distribution facility. Previously centralised supply chains supported numerous micro-enterprises and could presumably do so again. Many of the efforts to set up small scale enterprise development have not worked, for a number of reasons, including lack of communication infrastructure, entrepreneurial expertise, insufficient attention to supply chains and lack of resource data. This experience must be taken into account when looking at where to go next. The economic viability of different supply and enterprise models should be carefully worked out to maximise the social, economic and environmental benefits of NTFP-based development.

At species level it appears that there are emerging supply problems especially for speciality products based on a single species such as birch bark. This needs further investigation as a strategic development issue and where possible rationalisation to harvest resources from timber trees prior to felling as was formerly the case. Overharvesting may also be an issue in areas close to urban areas or access lines. This needs to be investigated and it may be that leases rather than opportunistic collection will provide a more stable basis for sustainable supply of products.

As the new RFC is based on a leasing system it is going to be important to investigate the opportunities for leases under the 2007 Forest Code for the former GozPromKhoz areas, especially where these are remote or high-conservation areas. There is a significant risk that without a lease these areas could be opened up for logging as has been the case in Sikhote-Alin Mountains of the Russian Far East. Besides providing local incomes NTFP use is more conducive to protection of the forest, carbon balance etc.

than logging. There is an important role for conservation and rural development NGOs to work with companies operating at a scale able to take on leases, to ensure that the areas suitable for NTFP exploitation are taken for this purpose to provide sustainable incomes and avert illegal logging.

At present strategic and management level NTFP resource assessment data is not available or is out of date. Data is a fundamental pre-requisite for sustainable management and there is a need to support the forestry authorities with the development of sampling based inventory so the required data can be collected in a timely and cost-effective manner. This has been identified as a priority research need for the past 10 years but has remained unaddressed.

There is plentiful research on NTFP production and use in Russia which stretches back at least 40 years. However, this is little known outside the institutes which undertook the research. This should be made more accessible and key papers or summaries translated into English for the international dissemination.

Forest or FSC-style certification is not a priority issue for NTFPs although they should be included in the standards for forest certification. However, certificates of hygiene, conformity and analysis are requirements for national trade especially for medicines. There are considerable problems acquiring such certificates in remote locations as they require laboratory testing. The provision of commercial testing facilities for NTFPs in key locations would help open up markets outside the producing region. There is also a need for harmonisation and rationalisation of tests and quality standards between Russian and international norms for foods and herbal products.

1 Background

This review grew out of a request from the Taiga Rescue Network (TRN) for a report on NTFPs based on observations made during a field visit by the author to Siberia in early 2009. The report quickly grew beyond this brief as it became apparent that the historical significance of NTFPs in Siberia is unique and it proved difficult to interpret current opportunities and barriers without learning something of the past. The report starts with an overview of the past, describes current concerns and attempts to identify the potential role of sustainable NTFP enterprises to the rural economy and forest conservation.

The common definitions of non-timber forest products (NTFPs) encompass everything taken out of a forest for use by humans with the exception of timber (i.e. the boles of the trees). From many perspectives this is a rather odd way of defining a field of interest and has arisen to counter the pre-eminence of timber in forest policy, planning, management and finances. There are many pre-conceptions concerning NTFPs which give the impression that they can be removed from the forest with minimal environmental impact, are best suited to small scale, local enterprise development and are mostly niche or speciality products. These perceptions are the drivers for many external interventions but are actually run counter to the realities on the ground and certainly the views of the forestry authorities. What is required is an objective review of both present pattern of use and aspirations for the future to identify the full potential of NTFP's to the sustainable development of Russia's forests. This review was an attempt to do just this using literature in English readily available from the UK, discussions with Katy Harris of TRN and a visit to Siberia in January 2008. There are obvious limitations to these sources but it is hoped that the analysis and recommendations are, nevertheless, useful. There is something of a bias within the review towards Siberia as this is where the author visited but the situation in other areas has been sketched in from a desk study and discussions with TRN members at the Western Siberia network meeting in Novosibirsk in February 2008.

The review aims to inform future projects and interventions which may include international organisations and agencies. The report has been prepared for TRN members and so highlights the ways NGOs can support the development of NTFP enterprises to deliver social and conservation benefits.

2 Introduction

Siberia is an ancient land and there is evidence that it was inhabited 45,000 ago and it was from here that humans colonised both Europe and the Americas. However, Siberia is vast, transport difficult and it is only in the last two hundred years that agriculture and industrialisation has made much impact on the landscape. Prior to the Russian invasion in the 16th and 17th centuries much of Siberia was home to indigenous people who lived close to the land and sourced much of their food and material goods from the forest. Many of the waves of people into Siberia likewise made extensive use of forest products and the Russians were initially attracted to the area by the fur trade, particularly sable, fox and ermine and taxes imposed on subjugated people were in the form of fur. Later, although fur did not lose its economic prominent it was superseded in volume by pine nuts and other plant products. By the turn of the 19th century pine nuts made up more than a quarter of the traffic by weight (6.8 million lbs per year) on the Trans-Siberian railway and 50% by weight of all traffic for Irbit and Nizhnyi markets (Ward 2007).

Forestry legislation was first introduced to govern the exploitation of the forests in 1782 during the reign of Catherine II but it was not until the Trans-Siberia railway was built (1891-1916) that large scale exploitation of Siberia's timber wealth began – before this

time the forest economy was based on NTFPs. Furs and game continue to be a significant part of the NTFP economy and in 2000 there was an estimated 9,000 tonnes of game meat and 20 million hides, skins and trophies (FAO 2005¹) taken from the forests of the Russian Federation (RF). Export of berries commenced in 1817 and by 1911 reached 1,392 tons per year (Paal 1998). Other important products were mushrooms, resin for turpentine, birch sap, medicinal plants and honey.

Systematic forest management commenced in 1705 and by 1781 basic laws and instructions e.g. inventory, protection and use had been established (Krott et al 2000). Nevertheless it was not until the late 1950's that the survey of the taiga was completed (Tseplyaev 1961).

The present day Russian Federation contains around 20% of global forest. Of the 1.2 billion ha of land within the Forest Fund² 883 million ha are covered with trees (Karvinen 2006). Russian culture is intimately bound to forests and NTFPs and the collection, consumption and use of wild forest plants, fungi and animals remains an important personal, cultural, subsistence and economic activity. Although much of the boreal forest has relatively low biodiversity their geographical extent means that they contain nearly 1500 species of tree and shrubs (Tseplyaev 1961) and numerous species of herb, other plants and fungi. Wherever ethnobotanical surveys³ are undertaken it is often found that up to 50% of the flora is used by people as food, medicine or in material culture. Russia is no different and Vorob'yev (1982 quoted in Barr & Barden 1988) estimates that 100 species of fruit, berries and nuts, 200 varieties of edible mushrooms, 2500 medicinal plants and 600 species were used in the pharmaceutical industry during Soviet times. Other estimates of the number of forest plants used as food are even higher: Prof. Izmodenov (quoted in McCaleb 2001) enumerates 1710 NTFP forest foods of which 225 are vegetables, 110 berries, 20 nuts, 20 saps, 250 bee plants and 1110 medicinal herbs. In addition to foods, the trees themselves were also exploited as a source of industrial raw materials such as pitch, turpentine and bark all of which are non-timber products.

Although industrial use and scale of commercial use fell off dramatically in 1990 the harvesting of NTFPs continues to be an important component of the livelihoods and coping strategies of rural (and urban) people as the command economy gave way to a market economy.

At the present time, attention is turning again to commercial NTFP exploitation as a means of generating income for impoverished rural people. This paper presents first some historical context for the role of NTFPs in the Russian Socialist Federation (RSF) of the USSR and the consequences of the transition to a market economy.

3 NTFPs under the command economy

From 1918 to 1992 along with all other national resources the forests were wholly state owned (the Forest Fund) and subject to centralised management under the command economy. During this time a forest management system to provide both NTFPs and timber in an integrated manner was put in place. This is a unique example of truly multi-product forest management and provides an essential backdrop to any examination of NTFPs in the present.

¹ Figures from <http://www.fao.org/forestry/32104/en/rus/>

² Lesnoy fond – state owned forest estate which is 99.5% of all forest land.

³ These are surveys of the use of plants by indigenous peoples and traditional societies. These often result in inventories (*sensu* lists of species)

3.1 Forest management

Perhaps the most significant impact of centralisation came in 1943 with the division of the forest fund into three management classes based on timber potential and national economic significance of the forest. These classes were:

- Group I forests - protection forests exempted from timber exploitation and included shelterbelts, greenbelts, forests required for field, soil and water conservation and special forest zones. Management of these forests was to maximise or maintain the special function of the forest.
- Group II covered the fragmented and sparse forests of densely populated industrial areas. Here management was usually intensive plantation silviculture.
- Group III comprises all other forests where all types of felling for timber was allowed (even in excess of increment in 'over-mature' stands).

There was great pride in the extent of the protection afforded by Group I designation and Tseplyaev (1961) remarked that 'Protection forests of the various categories constitute one of the great achievements of Soviet forestry.' However, besides strict protection Group I also contained forests where the primary objective of management was NTFP production. The economic argument for inclusion of NTFP forests in Group I should not be underestimated as in Arkhangelsk commercial use of berries alone was estimated to be worth 2.5 to 3 times the value of timber and it was generally acknowledged that NTFPs generated more income than timber harvesting (Kukuev 1999).

There were several categories of NTFP forest within Group I as well provision for NTFP use within Group III (the timber production forests). The most notable categories of NTFP forest were:

- Nut forests - 1.9 million ha of nut tree forests = 1.1 % of Forest Fund (Barr & Braden 1988). These were mostly pine nut forests of Western Siberia (*Pinus sibirica*) and the RFE (*Pinus koraiensis*) as well as relatively small areas of deciduous nut-bearing species (walnut, chestnut, almond etc.) in the Urals. The nuts were intended for human consumption but also as a food source and habitat for fur bearing animals. The nut forests were first designated in 1953 (Filiptchouk et al 2001) within Group I and were not to be felled for timber.
- Turpentine forests (*Pinus sylvestris*) - 15 million ha of forests managed for resin tapping (50% in eastern Siberia, 15% in Western Siberia and 25% in the northwest). These were mostly within Group III as the trees were managed for both turpentine and timber with tapping taking place for the five years prior to felling (FAO 1995, Yaroshenko et al 2001, Gildemeister 1916).
- Zakazniki - 65 conservation areas for medicinal plants (Karvinen et al 2006).⁴

There have been several changes to the definition of the various forest Groups since the institution of the RF (e.g. 1997 Forest Code) and they were again revised in the 2006 Forest Code. However, these changes were mainly affected the forests designated for timber exploitation and as shown in Table 1 the proportion of the Forest Fund in Group I has remained constant. The areas assigned primarily to NTFP production are very large and globally are only matched by the Extractive reserves of Brazil.

⁴ No additional information available to the author.

Table 1 Management groups in the Forest Fund

Area	Year	Percent area of Forest Fund by management group			
		Group I	Group II	Group III	
				Exploitable	Reserve
Russian Socialist Federation	1961	5.5	4.0	90.5	
	1966	15.0	4.0	81.0	
	1996	21.0	6.0	48.0	25.0
Russian Federation	2006	22.0	-	54.0	24.0

Source Tseplyaev 1961, Karvinen et al 2006, Pisarenko et al 2001, A Yaroshenko (TRN network meeting Feb 2008)

Non-timber forest products were in fact harvested from all but the most strictly protected nature reserves with the only limitation being access. However, with the use of military planes to lift collectors and products from remote locations and collection taking place within 300-500 km of major access points this was not as much of a limitation as might be supposed. Nevertheless as shown in Table 2 the bulk of the production was in the western part of the Soviet Union, closest to the centres of human population⁵.

Table 2 Production of NTFPs in mid-1980's

Product	Production (tons)	
	Soviet Union	Europe-Uralia
All fruit and berries	167,300	145,100
Cranberries & cowberries	22,900	20,300
Honey	40,100	21,700
Birch sap	42,700	41,900
Mushrooms	31,700	28,700
Nuts	10,500	3,200
Medicinal herbs	15,700	11,800

Source: Anuchin 1986 quoted in Barr & Baden 1988

In addition to the wholesale trade there was also significant personal or home use of wild forest foods. Demidova & Alhojärvi (2001) report that during the 1930's in Arkhangelsk that local people collected 1,830 tons of berries and 2,040 tons of mushrooms in a year of which 250 and 200 tons respectively were for home use.

There was also large scale use of NTFPs as a source of industrial raw materials. In particular tapping of turpentine supported several paint factories and it was even tested as a component in rocket fuel (Sutton 2003).

3.2 Yield regulation

During this period the planning of forest exploitation was based on sound principles with harvest licenses issued for prescribed yields based on inventory⁶.

Inventory was the responsibility of the All-Russian Research Institute of Silviculture and Forestry Mechanisation (VNILM) and forest inventory and planning enterprises of the Federal Forest Service. NTFP inventory data was collected during standard forest inventory⁷ on areas 'referred to specifically as non-wood forest product areas' (Kukuev 1999). This is a little ambiguous and suggests that NTFP inventory may have been

⁵ It is interesting to note that most NTFP activity now seems to be focused on the RFE, Arkhangelsk, Altai and central Siberia – there is the suggestion that this is a consequence of intense logging in European FSR has significantly reduced the extent of NTFP harvesting areas there are also concerns that these forests are contaminated with radiation and industrial pollution and there is a preference for "eco-pure" products from remote pristine environments.

⁶ Although there is scant evidence that yield prescriptions ever restricted the harvest.

⁷ See Pisarenko et al 2001, Appendix 2 for a brief description of Soviet era timber inventory.

restricted to either Group I forests or perhaps zoned areas within forest management units (FMUs)⁸. The actual protocols used are not available in English but Kukuev (1999) reports that 1995 'Guidelines for inventory of the State forest lands of Russia' stipulated that resources of food, medicinal and technical plants were to be assessed in accordance with methodology⁹ laid down in 1986. Inventory data on NTFPs was collected in two ways: as part of routine inventory and planning every 10-15 years at regional level and at forest management unit (FMU) level every 3 years. The inventory focused on wild berries, mushrooms and nuts (Rutkauskas 1999) although standard methods were also developed for assessment of medicinal plants.

The All-Russian Research and Information Centre for Forest Resources (ARICFR) maintained a database which contained information on the stocks of NTFPs in all regions. This information formed the basis of average annual yield tables based on species and forest type. The commercial yield of each area was determined and generally came out as around 50% of the biological yield.

Initially commercial yields were determined using rules of thumb but it was recognised that for seasonally varying products (most foodstuffs) that forecasts of yields were of more use than static assessments of yield based on the presence of bushes. In order to provide dynamic forecasting of seasonal products the Service for Accounting Resources and Forecasting the Yield of Wild Forest Foodstuffs was established in 1982. The Service employed professional foresters and utilised simplified visual assessments and systematic records to forecast yields. However, Demidova & Alhojärvi (2001) suggest that real time forecasting utilising these data was not fully possible because of the paucity of good quality weather forecasts for the remoter forests containing high volumes of NTFPs.

The idealised management system for NTFP was the designation of high-yielding areas primarily designated for NTFP use where rules for exploitation including the permitted quotas, assessments of economic profitability as well as regeneration periods by forest type. It was also suggested that areas close to communities should be protected from large-scale harvesting to provide readily available resources for personal use¹⁰.

Generally forest management accommodated NTFPs and the general rules governing forest byproducts allowed tapping for turpentine and sap within five years of logging and bark stripping immediately before logging (Filiptchouk et al 2001). However, logging was found to be incompatible with berry and mushroom harvesting as removal of the overstorey and soil disturbance was found to severely reduce the growth and yield. As logging proceeded the area from which berries could be harvested shrank and partially in anticipation of reduced yields and in order to improve the crop a programme of berry domestication was initiated in the 1957 (Paal 1998). By 1990 numerous cultivars had been developed and around 30% of the production of currants (*Ribes* spp), raspberry (*Rubus idaeus*), buckthorn (*Hippophaë rhamnoides*) and rosehip (*Rosa* spp) were from cultivated stands (Karvinen et al 2006).

3.3 Research

There were eight specialised Forestry Schools offering degree level or higher education in forestry. The St Petersburg Forestry Academy is the oldest and was established in 1803

⁸ Unfortunately no further details of the Soviet management system for NTFPs were available to the author. A review of these systems with an evaluation of their effectiveness would be of great use to the new generation of Russian foresters as well as being of interest globally where there is little experience of systematic large-scale management for NTFPs.

⁹ Methods for determining medicinal plant stocks (1986) – apparently not available in English.

¹⁰ This needs to be verified as such areas need are still needed and should not be included in timber leases.

with the others distributed across Russia (Moscow, Arkhangelsk, Ekaterinburg, Krasnoyarsk, Khabarovsk, Voronezh, Bryansk and Yoshkar-Ola) supplemented with Forestry Departments in the Agricultural Universities.

Forest research is undertaken at eight Forest Research Institutes and 12 Forest Experimental Stations each with their own specialisation (Krott et al 2000). In order to disseminate findings a special journal Plant Resources (see Box 1) was founded in 1967 by the Academy of Science of the Soviet Union.

Box 1 Rastitelnye Resursy



'This publication is designed to inform individuals on the published scholarly documents such as biology morphology, anatomy, ecology, initial introduction of types, use of composition, protection of useful plants and more.'

Journal published in St Petersburg by Russian Academy of Sciences. Four issues a year from 1967 to date (2008 = Vol. 44) in Russian.

ISSN:0033-9946

Available at annual subscription of ~ US\$200 from www.abemarketing.com

Early (before WWII) research was mostly concerned with the biochemistry of wild berries, particularly the *Vacciniaceae* family but also with export, storage and processing (Paal 1992). After WWII research tended to focus more on biology and autecology. Research grew apace with a conference on NTFP utilisation in Kirov in 1972 which resulted in the founding of a Committee for Wild Berry Research in 1975 as a unit of the All-Union Botanical Society. The Committee initiated a comprehensive programme of research and undertook an active and productive programme of activities up to the mid 1980's (Paal 1998).

In 1980 a second NTFP institute was founded in the Scientific Council of Forest Management, again in the Academy of Sciences of the Soviet Union. This was to have a wider remit than berries but despite holding several conferences it did not really take off.

The universities also undertook ecological research and NTFP product development including marketing studies. For example McCaleb (2001) was informed that the Krasnoyarsk State University which includes the Institute of Trade and Economy which includes two main disciplines: The economic department specializes in the study of marketing foods and non-foods and conducts market research while the technology department researches develops food and pharmaceutical production technology, and is involved in public catering. The Institute does have a focus on forest products, especially their use in food. A department of public catering is responsible for extension of research results to restaurants, bars and public catering (e.g. schools). Among the research interests of the University staff are:

- Secondary products from cedar nut oil
- Secondary processing of other forest products
- Antioxidant constituents of forest products (polyphenols and anthocyanins)

- Inulin (a non-digestible carbohydrate) from the NTFP burdock (*Arctium lappa*) among other plants, as a diabetic food and additive for baking.
- Use of plants for water purification and bioremediation
- NTFP as a source of flavour and colour compounds
- NTFP as a source of bioactive compounds to fortify other foods
- Patented extraction technique using "liquid CO₂" or carbonic acid, reportedly "much cheaper" than supercritical CO₂ (the latter is one of the fastest growing commercial extraction technologies)
- Siberian pine nut research into nut shells as a source of phenolics for various applications
- Chemical composition of >20 kinds of essential oils
- Market research – market volume, demographics, consumer demand and preferences, specifics of consumption
- Have done market research on clothes, sausage, windows, auto parts, eggs and others
- They have designed focus group research

In Arkhangelsk, Chibisov & Demidova (1998) reported on research focused on the 70% of the northern forests which contain berries but low timber productivity. The species of most interest were berries (Cowberry, Cranberry, Bilberry and Cloudberry) and a few mushrooms (e.g. *Lactarius tormonosus* and Red-headed mushrooms). Systematic studies over several years on was used to estimate the area and productivity of each species and formed the basis of a forest zonation for NTFP exploitation and yield estimation. The yield estimates for Arkhangelsk were estimated as being 39,300 tons of berries while harvesting at its peak in the 1930's only amounted to 1,830 tons of berries and 2,040 tons of mushrooms and by the late 1980's was hundreds rather than thousands of tons.

Research in Arkhangelsk also revealed that logging of the forest significantly reduced the production of berries because of collateral damage to the berry-yielding understorey shrubs. Indeed industrial logging had resulted in the 'total degradation and disappearance of shrubberies on vast areas'. The impacts are not just physical disturbance but also changes in micro-climate which reduces viability of some species (bilberry and cowberry) but provides opportunities and increased yields for others (cloudberry and cranberry). The conclusion of these studies was that it is best to separate timber and NTFP production and doing this would require a 15-20% reduction in timber production area. Logging procedures to minimise adverse impacts on bilberry and cowberry were also prepared.

3.4 Administration

In 1966 the Ministry of Forestry was formed to combine the roles of a forestry authority and a state forest enterprise. The forestry authority on the ground was the Leskhoz with primary responsibility for administration, controls and protection. In regions with low stocking (which includes all northern tundra forests) where logging was likely to be uncommercial the LesPromKhoz (a 'complex state enterprise'¹¹ within the Ministry of Forestry) took care of management interventions such as regeneration, thinning and other necessary works. All proceeds of the LesPromKhoz were retained with the Leskhoz to help fund management activities. In areas with high timber stocking (European Russia and the RFE) logging was the preserve of 800 specialist logging enterprises under the Ministry of Forest Industry with a stumpage fee paid into local accounts. Silviculture, protection and other activities was the responsibility of the Leskhoz under the Ministry of Forestry from a Federal (central) budget.

¹¹ Vertically integrated units which undertook logging and processing.

Even before the devolution of forestry inherent in the 2007 Forest Code, NTFP use was entirely regulated by regional government. Furthermore from 1967-1990 a government ordinance exempted NTFP revenues from tax and permitted the Leskhoz to retain them (to supplement stumpage fees, proceeds of improvement cutting and Federal transfers) to fund silvicultural operations (Krott 2000). This together with access to unimpeded loans from State banks made it possible to create a stable basis for NTFP enterprise development. This promoted increased harvesting of berries in some regions e.g. Vologda, Arkhangelsk and Murmansk and mushrooms in others e.g. Komi (Karvinen et al 2006) and assured the growth of processing of forest-foods (Kukuev 1999). In regions with scarce forests their own revenue i.e. that generated from silvicultural logging and NTFP enterprises predominated while in ones rich in forests stumpage was the main form of income (Krott 2000).

The wholesale extraction of NTFPs including game and fish was organised by the GosPromKhoz (Gosudarsvennoe Promyslovoe Khoziaistvo) variously described as the 'state complex hunting-trapping-fishing enterprise', 'state purchase enterprise' or 'state trade husbandry'. It is not clear from the available literature whether there were GosPromKhoz for all NTFP forests or since the enterprise is most often mentioned in connection with hunting whether they were confined to prime game areas or Group I forests. It is also not clear whether the Leskhoz also acted as a NTFP enterprise. What is clear is that the GosPromKhoz were responsible for all harvesting of NTFPs from defined blocks of land, for example, the Milkovo GosPromKhoz in Kamchatka covered 270,000 km². The hunting quotas for the GosPromKhoz were set by the Kraiokhotupravlenie (Territorial Hunting Bureau) subject to Ministry of Hunting, fish quotas by the Ministry of Fisheries and plant quotas by the Leskhoz (Vladyshvskiy et al 2000). These resources were collected by GosPromKhoz brigades who were paid a salary to meet quotas with the option of earning bonuses for additional catches¹² (Ziker 2002).

At least in the RFE there were also CoopZverPromKhoz which took the form of workers' co-operatives where presumably there was a degree of local autonomy. These co-ops were also primarily concerned with hunting and may have operated in areas outside the GosPromKhoz where the Leskhoz acted as the NTFP enterprise.

3.5 Supply chains

The supply chain in a command economy is relatively simple: targets are given for production, raw materials are pooled, assigned to processing enterprises and products distributed through retail outlets according to pre-determined quotas and prices. This was the case for NTFPs as much as it was for agriculture and industry. Organising the collection of large quantities of wild, perishable, seasonal foodstuff from remote forests is a considerable logistical challenge which included airlifting brigades with camping equipment and driers into remote berry areas for months at a time. It is difficult to say whether this was cost effective or not but was certainly a significant commitment of resources to harvesting NTFPs and there must have been some imperative to do it. Unfortunately it is not clear what these might have been – in the early days it could well have been simply continuing with 'business-as-usual', later it may have been as a source of employment for rural communities but at the end it was definitely a matter of national food security. By the late 1970's difficulties with food supply resulting from increasing failure of the collective farms served to increase reliance on wild forest foods. The upshot of this was that NTFPs were included to a greater or lesser extent in the periodic campaigns used to promote specific products which were a feature of the Soviet period

¹² This suggests that the quotas were the minimum necessary to fulfil orders and not the maximum sustainable yield where harvesting above the quota would be unsustainable.

with the Food Programme¹³ of the 1980s being both the last and most prominent of these. On the back of these campaigns new enterprises (within the GosPromKhoz and perhaps also the Leskhoz) were developed to supply new products and these opportunities were exploited by small-scale NTFP enterprises using traditional production techniques such as jam, alcoholic beverages, herb teas, natural oils and extracts according to traditional recipes.

The main role of the GosPromKhoz was wholesale 'middle-men' in the NTFP supply chain and in this role could be proactive in order to take advantage of seasonal gluts. For example, Vladyshevskiy et al (2000) report that the GosPromKhoz would buy mushrooms from local gatherers only in the years of unusually rich harvests when purchase prices were low. This suggests, firstly that there was at least some flexibility in the command system and prices did respond to supply and demand, and secondly that the system had some features of a opportunistic market as pickers either as individuals or brigades responded to public notices saying that the GosPromKhoz wished to buy resources outside the pre-determined quotas. Nevertheless they still bought in bulk raw materials at fixed prices based on volume and not quality (de Beer 1989). Under the GosPromKhoz, individuals (especially hunters) and brigades were able to increase their income and prestige¹⁴ by exceeding quotas (Ziker 2002). There are indications that the Leskhoz also engaged in wild botanical collection activities as a means of generating income for forest management.

The main buyer of wholesale NTFPs (and indeed all agricultural production) was the Tsentrosoyuz¹⁵ (Central Union of Consumer Societies) – a consumer co-operative founded by the exiled Decembrists in the Lake Baikal area founded in 1831. In 1920 Lenin transferred all the functions of any All-Russia co-operative centres from the Tsentrosoyuz and merged it with the All-Russia Central Board of Agricultural, Trades and Other Co-operative Societies. This created a single, massive organisation responsible for procurement, processing, packing and distribution of food around the Soviet Union. After 1935 the co-operative focussed on the provision of services to rural communities. The Tsentrosoyuz as a state monopoly was able to establish a huge centralised supply chain for agricultural produce into which the wild-harvested NTFPs were channelled as illustrated in Box 2 for Krasnoyarsk Krai. At this time it has been estimated that the Tsentrosoyuz handled around 50-70% of the total harvest of berries, nuts and mushrooms (Agaphonov 1972 quoted in Paal 1998).

Box 2 Tsentrosoyuz production system for NTFPs in Krasnoyarsk Krai

Although the Tsentrosoyuz is a co-operative it apparently functioned more as a as single NTFP enterprise than an amalgam of smaller operations. The main elements of the supply chain established within the Krasnoyarsk branch (Krasnoyarsk Regional Union of Consumer Societies) in 1989 and 2001 were as follows:

Procurement: In 1989 presumable purchases were from the Leskhoz and GosPromkhoz. By 2001 these were no longer able to supply large quantities so the Tsentrosoyuz has to stimulate the collection of the species they wish to purchase through announcements in the mass media (newspapers, radio etc.) and locally by posting notices in public places. The collection centre prefers to buy fresh produce but is prepared to buy pre-processed (e.g. dried) produce from established and trusted vendors. Fresh

¹³ Prodovolstvennaya Programma launched in 1982 in response to crisis in Soviet agriculture which led to widespread food shortages in the late 1970's.

¹⁴ This would increase their social capital which in the livelihoods framework is a reward commensurate with income (as long as income was sufficient to meet basic needs).

¹⁵ Current description of business: Operation of consumer co-operative society; production of foodstuffs; manufacture of consumer goods; purchase of agricultural products and raw materials; establishment and operation of retail shops for foodstuffs and consumer goods; operation of catering establishments Annual sales worth 1-2 billion euro with 4-5 hundred thousand employees across Russia. <http://www.rus.coop/>

produce is harder for the collectors to handle and deliver but enables the warehouse to better control the quality of its products.

Primary processing: The collection centres have drying facilities, refrigerated storage units and special storage containers for nuts and for salted materials.

Storage facilities: 62 potato and vegetable stores – 11,637 tonnes capacity
3 fruit storehouses - 2540 tonnes capacity
60 refrigerated stores – 7,208 tonnes capacity

Quality control: The buyers in the collection centres are specially trained and certified by the Krasnoyarsk Metrology Centre (trading standards). Produce coming into the collection centres are tested against a range of standards including organoleptic (taste, colour, odour, texture etc.), density of essential oils and other standards as required for specific products. Standards for new products or uses are developed by experts contracted from the relevant institutes.

Export: Several warehouses pack shipping containers for direct export with mushrooms going to Yugoslavia, the Czech Republic and Slovenia, nuts to China, leather to Italy and furs, horns and antlers to China and Korea. This was the situation in 2001, in Soviet times export east would not have been possible but there was significant export out of the krai within the Soviet Union and also to Europe

Production facilities: 15 small-scale units producing preserves and juices using traditional techniques
Krasnoyarsk – 1.5 million unit canning facility (cans contain 0.5 kg)
Shushenskoye – 1 million unit canning facility
Abakan – 1 million unit canning facility

Only one new facility, Minusinsk (4 million unit cannery) out of three that were planned at the break up of the USSR was built and this is now the only facility that still operates but at a fraction of its capacity.

Retail: The Tsentrosoyuz maintain a supermarket and 5 retail shops in Krasnoyarsk and 50 shops across the krai. These are all used as outlets for the produce from the collection centres. The most popular products are fresh meat and fish, fresh or salted mushrooms, berries (lingberry, bilberry, cultivated strawberries and cherries) and honey. In 2001 these shops reported a significant decline in local sales of forest foodstuff as the market is flooded with poor-quality suppliers who “flood the market” with cheap products. There was also a feeling that imported products were somehow “superior” to local products which are often poorly packed and presented. Previously this network of retail outlets was probably larger and local products would have been very prominent in them.

In 1989 the NTFPs handled by this system included:

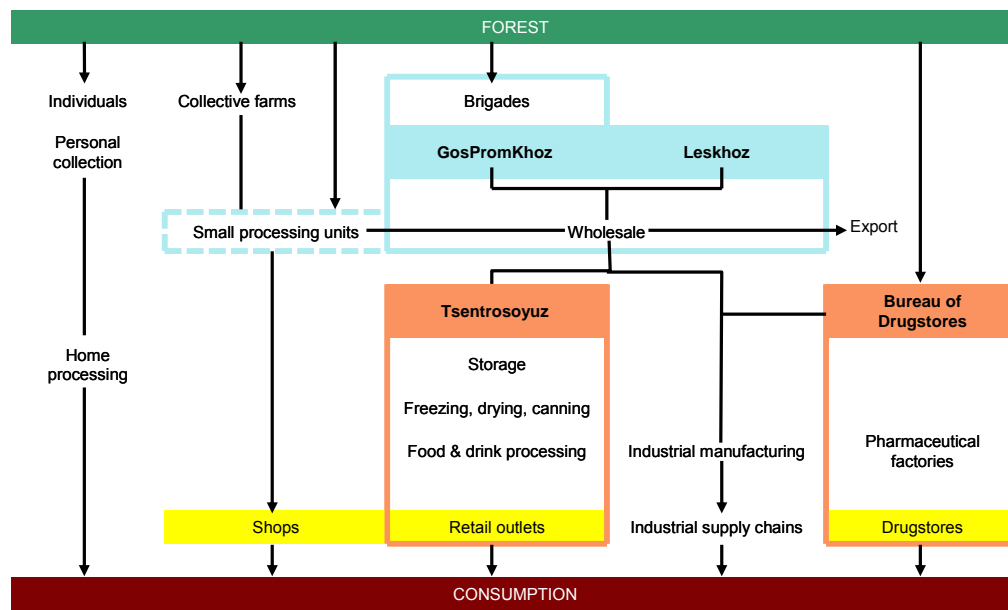
Product	Tonnes
Wild fruits	641.6
Cranberry, lingonberry	86.8
Seed-bearing fruit	56.0
Stone fruit	101.0
Mushrooms	172.5

These raw materials were processed into: 2,490,000 cans of fruit and berries, 1,215,000 cans of vegetables and 1,341,000 cans of natural juices and preserves. This output was distributed to urban centres within the Krai and across the former Soviet Union.

Source: McCaleb (2001)

Besides the Tsentrosoyuz (dealt with 50-70% of all trade in berries, nuts and mushrooms Paal 1998) there were also two other agencies with a specific interest in medicinal plants. Zadorozhnyi (1975) indicates that around 35-40% of medicines used in the Soviet Union were derived from plants the majority of which were wild harvested with only 36% of the annual harvest grown on specialised state farms of the Lekarsprom (All-Union Combine of the Department for the Medical Industry of the Ministry of Industry). The Bureau of Drugstores also collected and processed medicinal plants. Collecting all these plants took a considerable workforce and in rural areas, school children were tasked with the collection of small quantities of wild medicinal herbs (Paal 1998). Figure 1 attempts to illustrate a generalised form of these relationships.

Figure 1 Generalised command supply chains for NTFPs



Arrows indicate the flow of products through the supply chain.
 Leskhoz was the forest authority and provided access to land and regulated harvesting of all other actors.
 Blue = Extractive enterprises
 Buff = Distribution enterprises
 Yellow = Retail outlets
 Note: it is not clear from available texts whether the small NTFP processing units belonged to the Leskhoz or Collective farms or perhaps could be either.

During the Soviet period there was significant export of NTFPs especially from the Vologda Region to Sweden, Germany and Finland. For example, between 1971 and 1974 over 130 tonnes per year of cranberries were exported and in bumper years this could be three to four times this amount e.g. 420 tonnes in 1975 (Kukuev 1999). This along with the internal trade collapsed in the early 1990's.

The upshot of these centralised and socially-orientated market structures was that much of the NTFP harvest was made available as a raw material to numerous small scale producers. Although state-mediated this NTFP supply chain effectively supported, widespread, small-scale economic activities worth millions of roubles to rural economies (de Beer 1989).

3.6 Environmental pollution

During this period there was rapid growth of heavy industry across the RFS. Much of this was large in scale, dirty and often located along with accompanying settlements in remote locations. These acted as point sources of air and water pollution and large areas of forest were (and are) adversely affected by 'forest die back'. More localised concerns are heavy metal contamination and radiation from nuclear facilities.

The most devastating single incident of industrial pollution is the melt down of the Chernobyl nuclear power station in Ukraine on the 26th April 1986. Fallout from the explosion deposited 700 ¹³⁷Cs kBqm⁻² on the Bryansk region of Russia closest to Chernobyl and an area of radius 30 km from the plant remains an uninhabited exclusion zone. Around 200,000 km of land were contaminated with radiation with 70% of this affected areas falling across Belarus, Russian Federation and Ukraine.

Comparative studies in 1994-5 suggest that the forest is harbouring radiation (¹³⁷Cs is bound in acid, peaty soils) and consumption of NTFPs can significantly increase radiation

exposure in people. Strand et al (1999) compared concentrations of radiocaesium in foods from different sources (collective farm, dacha and forest) and determined that forest foods made the greatest contribution (83%) to radiation uptake. This was followed by a more detailed study looking specifically at forest pathways for radiation exposure (Fesenko et al 2000). This study showed that it is not just internal risk from consumption of forest food which is an issue as forest workers also pick up external contamination from exposure to the forest itself. Without the benefit of the remediation measures applied to agricultural land the levels of radiocaesium in the forest remain close to 1987 levels. The impact of this is that the forest is increasingly the source of radiation exposure – in 1987 it contributed 10-15% of annual doses but by 1996 this had increased to 40-45%. Overall radiation dose rates remain too high for safety and the authors conclude by stressing that countermeasures such as preventing access for mushroom picking (these contain high levels of radiocaesium) and forest remediation is necessary.

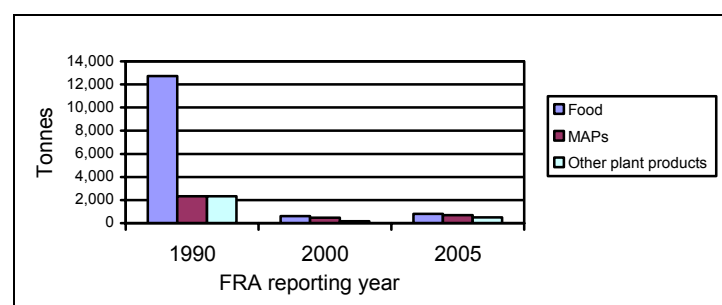
The Chernobyl incident served to highlight the risks of industrial pollution and increased the attractiveness of “eco-pure” as a marketing message.

4 NTFPs in transition

By the late 1980’s the command economy was in free fall with food shortages and other economic problems. Gorbachev’s response to this was the Perestroika program of economic restructuring. The Law on Cooperatives, enacted in May 1988, was perhaps the most radical of the economic reforms during the early part of the Gorbachev era. For the first time since Lenin’s New Economic Policy, the law permitted private ownership of businesses in the services, manufacturing, and foreign-trade sectors. The law initially imposed high taxes and employment restrictions, but it later revised these to avoid discouraging private-sector activity. However, the reforms did not prevent a complete collapse of the economy and by 1991 the Soviet Union had broken up and most state enterprises closed down or barely functioned.

The Leskhoz, GosPromKhoz and Tsentrosoyuz were not exempt as these monolithic state-operated enterprises were ill-equipped to deal with the changes in business practice and market structures. Having lost their main buyer, primary producers did not have the capital or capacity to research new markets, develop products or establish the extensive trade networks that were now needed to maintain their NTFP-based incomes. The imposition of tax regimes that discouraged legal harvesting as well as substitution of established products with imported alternatives acted as further barriers to the continued existence let alone growth of NTFP enterprises. It is therefore not surprising that a great many factories, processing facilities and enterprises closed down and NTFP incomes went into a rapid and dramatic decline (de Beer 1989) as shown in Figure 2.

Figure 2 Volumes of NTFPs removed in the Russian Federation



Source: FAO 2005¹⁶

¹⁶ Figures from <http://www.fao.org/forestry/32104/en/rus/>

Gorbachov was succeeded by Yeltsin (1991-1999) and the new RF moved into a *transition* period where the command economy was to be replaced by a free-market economy. But cash remained scarce, privatisation was piecemeal and often exploitative, regulation remained oppressive and there was little done to nurture private enterprise. However, the doors were open for foreign business, NGOs and bilateral aid programmes which began to take an interest in the NTFP sector. Perhaps the most significant event during this period was the opening up of trade with China who rapidly became the leading market for ferns, mushrooms, medicinal plants and timber from Siberia and the RFE.

Post 1991 there was a lot of speculation concerning the transition of the Russian economy from the previous command system to a free-market economy. At first hopes were high that those made redundant by the state would be able to start-up new private enterprises thereby establishing a free-market and market forces would be able to ensure the supply of food, goods and economic prosperity. Unfortunately transition turned out to be a protracted and uncertain process. The reasons for this are not just the intransigence of government, corruption, lack of entrepreneurial capacity (see Box 11) but also deeper cultural (see Box 3), psychological (see Box 12) and personal (see Box 4) reasons.

Box 3 Greenspan is skeptical on Russia's Transition

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"Much of what we took for granted in our free-market system and assumed to be human nature was not nature at all, but culture. The dismantling of the central planning function in an economy does not, as some had supposed, automatically establish a free-market entrepreneurial system . . . The presumption of private property ownership and the legality of its transfer must be deeply embedded in the culture of a society for free markets to function effectively" Alan Greenspan

Quoted in Ziker 1998

It is too early to judge the longer-term impact of Putin's regime on NTFPs – certainly the devolution of forest management to the regions by the Forest Code introduced in 2007 will be far-reaching. Whether Russia's disenfranchised rural villages sink into apathy, enter the market economy or find another way of living remains to be seen.

4.1 A safety net

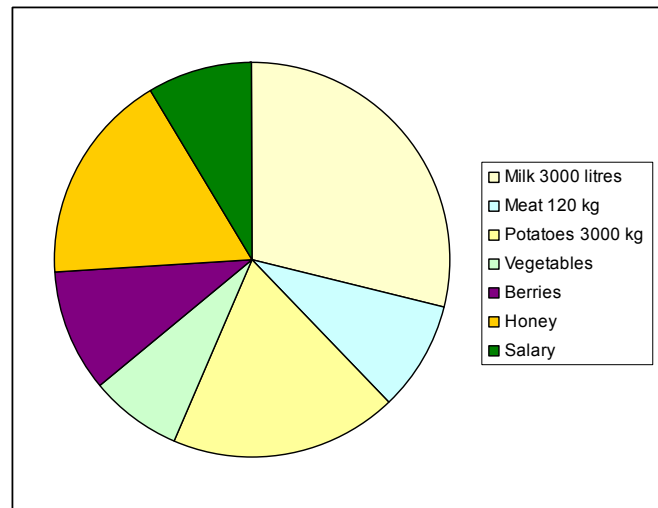
Much is made of the role of forests and NTFPs as a safety net in times of adversity. As Paal (1998) pointed out 'In hard times – such as wars, failing crops and abrupt political changes – non-wood products have often been of vital importance'. The economic crisis of the late 1980's was a hard time and NTFPs were used to shore up food security. In 1990, just a year before the breakup of the Soviet Union the forests supplied 12,731 tonnes of foodstuffs, 2,341 tonnes of medicinal and aromatic plants and an equal amount of other plant products (FRA 1990)¹⁷.

The sudden cessation of the supply of NTFPs was a hard blow to urban and rural people with the former losing food security and the latter an income. Both turned to their dachas and the forest for sustenance. The extent of this dependency is shown in Figure 3 for a forest ranger in 1996. For urban populations obtaining forest berries and mushrooms is a more difficult task and Lukin & Demidova (1999) report that people

¹⁷ For comparison, in 2005 the Forest Resources Assessment of FAO the largest harvest of fruits, berries and edible nuts in Europe was 12,027 tonnes from Finland with Turkey's 11,499 tonne harvest leading for resins, medicinal and aromatic plants, colorants and dyes. So Russia's harvest in 1990 was certainly significant.

living in Arkhangelsk, Severodvinsk and Novodvinsk will travel up to 300-500 km to pick berries for household consumption. There is some inevitably some competition between urban and rural pickers especially as the latter also pick to sell direct and through local farmers markets. Such sales are often of unsophisticated products (poor packaging, presentation and marketing) and remain at a low level while the Babushka selling a few mushrooms on the side of the road remains a common sight in rural areas. If commercial collection is re-established in such areas then it may be important to secure access for personal consumption as well as protecting sites from over-exploitation (Demidova & Alhojärvi 2001).

Figure 3 Diversified income profile for a Forest Ranger circa 1996



Annual income for Forest ranger with 0.25 ha plot, 1.5 ha hay meadow, forest products and salary of ~US\$ 3450 per year in 1996 (from Krott et al 2000)

Access to forest foods is perhaps most important in northern and eastern Siberia where soils and climate mean it is not possible to grow many domestic food crops or they are unreliable. Prior to 1990 and especially in the 1970-80's the central planning system had ensured that sufficient foodstuffs were imported into these regions at accessible prices. This is no longer the case and unemployment coupled with increasing cost of imported (into RF) agricultural produce mean that most of the population is not able to afford more than basic foodstuffs Vladyshevskiy et al (2000). After the Financial crisis of 1998 a survey of 500 villagers showed that the use of mushrooms and Siberian pine nuts increased 2-3 fold, the use of wild onion 3-5 fold and berries 1-1.5 fold (relatively little because sugar for jam making was expensive). Where forest industry enterprises have closed, NWFPs are often the main source of food and income for village populations, representing as much as 30-40% of household income.

From 1996 to 2000 very little changed in terms of the role of NTFPs in what are basically subsistence livelihoods. Table 3 shows that overall harvests remained at a low level while collection is mostly for personal use.

Table 3 Collection of wild plants in Krasnoyarsk Krai circa 2000

Product	Species	Productivity	Harvesting	Use in 2000
Mushrooms	15-18	Highest in young pine forest with lichen and moss cover (65-170 kg ha ⁻¹), Low productivity in herbaceous forest, old dark coniferous and bog forests. Practically no mushrooms in logged areas covered with grass.	Collected up to 5-6 km from villages or public transport routes – but can drive 40-60 km. Daily harvest of 15-100 kg per person. Former harvest of 1000 tonnes per year	80-90% for personal consumption.
Berries	10-11	Berries found on 3-4% of forest land and 10-16% of land in favoured areas. Logging can increase the growth of some species but grass growth can smother lingonberries and bilberries.	20-25 k on foot and 200-300 km by car. Lingonberry yield can be 50 kg per person, for other species 25-25 kg per person. Former harvest of 1000 tonnes per year, by 1995 600 tonnes.	90% for personal consumption
Pine nuts	1	Over 75% of Siberian pine forest production is low (25 kg per ha ⁻¹) in the other 25% yields can reach 100-150 kg per ha ⁻¹)	Over six week season 100-1500 kg per person can be collected. Cones collected from August.	Nuts and cones for sale.
Medicinal plants	50	Most collection has little to no impact on the species: exceptions are: Golden root (<i>Rodiola rosea</i>) and Bearberry (<i>Arctostaphylos uva-ursi</i>) which have been over-harvested.	Formerly 50 tonnes per year by 1995 11 tones in 2000 harvest all but ceased.	Personal use and local sales
Bracken	1	Dense growth in forest glades?	1000 tons annually from 1997	Sale to Japan

Source: Vladyshevskiy et al 2000

4.2 Conservation

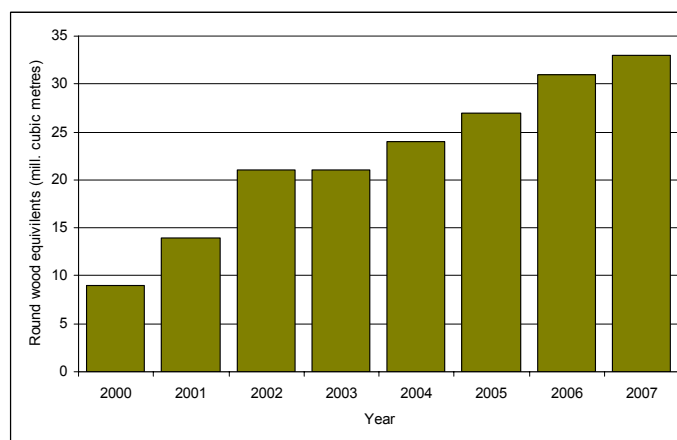
The one area where the free-market has taken hold is logging with the export of timber to Europe and China which commenced trade with Siberia in 1997. As shown in Figure 4 trade between Russia and China has steadily grown to the point where 56% of China's total roundwood imports comes from the RF and there is a significant presence of foreign logging companies in Siberia, RFE and Arkhangelsk¹⁸. Detailed consideration of the consequences of this are beyond the scope of this paper but logging, especially illegal and careless operations will have an impact on NTFPs especially as NTFP yields are highest in relatively undisturbed forest.

Old growth is the most valuable forest for conservation and latest estimates estimate that 26% of the forest zone remains as large, intact forest landscapes but only 5% of this are in areas with special protection at federal level. Eastern Siberia is least affected by modern land use, with 39 percent of the forest zone still intact, followed by the RFE (31 percent intact) and Western Siberia (25 percent intact) (Aksenov et al 2002). Much of the remaining intact forest are Group I forests outside the strictly protected areas. These were originally placed in Group I because they had low timber stocking, high stocking of NTFPs (the berry grounds of the north and the game and pine nuts "cedar" forests) such that revenues from NTFP exploitation was 3-4 times that of timber. It appears that the resources of many of these areas were purchased (effectively managed)

¹⁸ See Tian Y (2008) China's imports of Russian timber: Chinese actors in the timber commodity chain and their risks of involvement in illegal logging and the resultant trade. Forest Conservation and Rights Project Occasional Paper No 2. Institute for Global Environmental Strategies, Kanagawa, Japan. <http://enviroscope.iges.or.jp/modules/envirolib/view.php?docid=1569>

by GosPromKhoz. What is not clear is what happened to these forests during transition and what is intended for them in the new lease arrangements of the 2007 Forest Code.

Figure 4 Trends in wood-based exports from Russia to China



Source: EU FLEG compilation of "General Administration of Customs of the People's Republic of China" (including as in China Customs Statistics Yearbook and in World Trade Atlas)

Aksenov et al (1999) suggest that leases for NTFPs, game, cultural sites, health and tourism could be used as a means of protecting remaining old-growth forest from logging. In effect putting in place a successor to the GosPromKhoz. This is not unprecedented and the Muravyevskiy Nature Park in Amurskaya Oblast in the RFE has been leased since 1993 by the Socio-Ecological Union for game purposes. While in the Republic of Khakasia, Rodnik have taken a lease for 163,000 ha of a former GosPromKhoz of old-growth mountain forest under the 2007 Forest Code for tourism and NTFP production (see Box 8). Also some of the GosPromKhoz have been privatised (e.g. AO Samarga see Box 4) but is it not yet clear whether this is going to be successful in protecting the forest or the indigenous people's interests. Indeed, it appears that instead of protecting the forest the GosPromKhoz staff are now rather exploiting the forest and people and a hunter in the Avam tundra in 1997 was heard to remark that "the GosPromKhoz is the mafia now" (quoted in Ziker 2002). If responsible leaseholders are not found for the Group I forests then there is the risk that in the absence of viable markets for NTFPs the economic argument that placed them into Group I may be reversed and these forests opened up to large scale logging. Time and resources to secure leases for the vacant Group I forests are likely to be limited and would be well served by a reinvigoration of large scale NTFP exploitation to provide, as formerly, the revenues necessary to maintain them. Further research is needed to ascertain the areas of land involved and the status of any functioning GosPromKhoz.

Box 4 AO Samarga, Primorsky Krai

Agzu is one of three remaining indigenous communities in the Krai who reside in the Samarga river catchment. The area has been identified as a hot spot by Friends of the Earth and it has been proposed as a protected area. Various US funded aid projects have been involved with the community on environmental education and also to support economic development based on sustainable resource use and local governance. A field trip to the area described the employment situation in Agzu in 1996.

The largest employer of Agzu people in Soviet times was the Samarginskii GosPromKhoz which governed the exploitation of NTFPs over an area of 720,000 ha. The GosPromKhoz acted as an enterprise and exploited a wide range of NTFPs including: pelts, game meat, berries, mushrooms, medicinal plants, honey, firewood for local consumption and a small volume of lumber. With the collapse of government price and market support to the GosPromKhoz in 1990 there was no outlet for the planned production of pelts and NTFPs and the only source of revenue was the local sale of firewood

and lumber. In 1995 the GozPromKhoz was privatised and became AO "Samarga" with a NTFP lease for the land.

Although the main income for the GosPromKhoz was pelts and game, plant NTFPs were an important part of the overall revenues. The resources which were harvested and sold through the GosPromKhoz included mountain ferns, bear garlic, cranberry, blueberries, plantain, celandine, tansy, dog rose and *Eletherococcus*. However, unlike pelts these activities completely ceased in 1990. Local people still collect but only for personal use. There was one shipment of mountain cranberry but this was not followed with repeat orders. At the time of the field trip (1996) high transport costs and low market value for raw products means that it is uneconomic to consider re-establishment of high volume exports of raw products from Samarga. Harvesting and trade of mushrooms and medicinal plants has ceased and although there is plenty of honey there are no accessible markets for it.

The best option for re-establishment of NTFP-based revenues for AO Samarga is value-addition processing of the raw materials. Besides processing of pelts and meat, jelly and jam production and fern drying have also been suggested. However, in order to obtain sufficient resources for processing would require pre-payment (payment for raw materials before final product is sold) as an incentive for harvesting in quantities that exceed those for personal use. Without any working capital and no assurances of successful sales it is difficult to see how any new enterprise can get itself through the cash-flow difficulties inherent in start-up and product launch.

The governance and institution of AO Samarga immediately after its founding was also somewhat uncertain. It was not clear who had initiated the privatisation process, the names of the founders or who sits on the board of directors. Despite RF Civil Code requirements, a stockholder's meeting has never been held, nor have the villagers seen the AO's charter. There was no apparent business plan for the AO and the former GozPromKhoz director was engaged in other activities, including running a commercial store furthermore he is not trusted and is reported to be engaged in some shady dealings in the region. The lack of active management of the AO posed a direct threat to the hunters and their territories and the Krai Department of Natural Resources moved to cancel the lease unless the proper documentation for the hunting lease was submitted. If this happened the territory would be placed on the reserve fund from where it could be auctioned to the highest bidder. As Samarga is an ethnic territory the indigenous people have priority rights to the area but someone needed to take responsibility for securing this with a formal submission of the required paperwork.

Jones (1996) concluded that "An objective view is that the chances for survival of AO Samarga are marginal unless someone quickly takes a step forward to run the organization."

However, as subsequent events played out it became apparent that it was the survival of the forest itself that was actually at stake. Sometime between 1996 and 2002 OAO Terneyles had obtained a license to log the Samarga catchment – presumably taking over AO Samarga and hence the former GosPromKhoz which would have been protected as a Group I NTFP forest. Logging of the previously unlogged natural forest came under attack by international environment organisations on behalf of the Siberian tiger. Sensitive to the NGO attacks and pressure from its Japanese trading partner, Sumitomo, which wanted environmentally sourced wood, Terneyles turned to WWF for assistance with FSC certification. As part of this process some logging practices were altered to protect the tiger and studies were also done on the globally significant salmon runs into the Samarga River by the US based Wild Salmon Center proposed collaborative training and planning with the USDA Forest Service regarding roads, planning, and management issues. In 2004 Greenpeace raised further concerns were raised concerning illegal building and industrialisation of the shoreline of Adimi Bay and disruption to the lifestyle and livelihoods of the Udege people who live in the area. In 2007 the area continues to be logged and retains its FSC certificate despite concerns that SGS (certifying body) surveillance reports are not publicly available (Illegal logging 2007).

Sources: Jones (1996),
Greenpeace 2004 (<http://www.greenpeace.org/russia/en/news/largest-timber-company-grossly>),
Wild Salmon Centre 2005
(http://www.wildsalmoncenter.org/programs/russian_far_east/samarga_expedition05.php),
Illegal logging 2007
http://www.illegal-logging.info/item_single.php?item=news&item_id=2094&approach_id=1&printer=1

Illegal harvesting is not just relevant to timber – unfortunately since the opening up of Russia for free-market exports there has been a noticeable increase in illegal harvesting of NTFP especially rarer medicinal plants. A feature of NGO activities in Russia is the involvement of student volunteers in monitoring, seizures and prosecutions of illegal

activities which includes trade in CITES listed species. Such action can be remarkably effective (see Box 5) and appears to be generally welcomed by the monitoring and enforcement arms of conservation, forestry and law enforcement bodies. This is because most of these are severely under-resourced and use volunteer student patrols as a means of gaining evidence which can be used in prosecutions. Volunteer patrols remain a feature of NGO and particularly student involvement in forest conservation. However, this should be seen as a stop-gap measure and not as a permanent solution to enforcement of forest regulations not least because of the personal risks of directly confronting illegal harvesters. Nevertheless, there is always a role for independent monitoring both by satellite image interpretation (Global Forest Watch) and ground patrols.

Box 5 Combating illegal trade of CITES-listed wild flower species

The wild collection and sale of perennial flowers for a range of purposes is a significant threat to populations and species, especially those which are slow-growing, vulnerable to disturbance and have restricted ranges. Over the past few years a number of organisations have co-operated to tackle illegal trade and over-harvesting for four spring-flowering perennials indigenous to southern Russia, Georgia, Ukraine with harvesting being most intensive in the Crimea. Species of *Galanthus* (snowdrops), *Cyclamen* are sold as live bulbs for planting in shady gardens and are both CITES listed. *Ruscus* (Butcher's broom) is used as a garden plant and also as foliage and is on the Russian Red List. *Helleborus* (Christmas rose) is used as a garden plant and also as a medicinal herb. Species from all four genera are in high demand and have been the focus of initiatives to combat illegal and unsustainable harvesting.

In Moscow State University Biology Department the staff and students formed an Environmental Protection Team under the Student Movement of Russia to do what it could to limit illegal trade in protected species. The Environmental Protection Team organised student volunteers to mount 'Operation Pervotsvety' to undertake monitoring of the illegal trade of wild flowers into Moscow. The students worked alongside the State Environmental Police and later the transport police (when the Environmental Police were disbanded in 2000) and customs posts and acted to confiscate illegal shipments. In 2002 all trains into Moscow from the Crimea and Caucasus were searched and 80,000 bunches (40 per bunch) of rare or endangered plants were seized. These activities led directly to prosecutions of traders and train conductors and resulted in a significant decrease in the volumes of commercial harvesting of these plants.

Global Forest Watch Russia launched a public awareness campaign in Moscow on the threats posed by the trade sale of rare plants. The campaign used billboards, newspaper articles etc. and has been successful in that the plants highlighted by the campaign are no longer offered for sale in Moscow. However, although this has many benefits it has had little impact on harvesting because the plants have simply been diverted into other markets and exported. In terms of the countries that supply the plants, Ukraine has acted to make the exportation of listed plants illegal but there are no controls from Georgia. Since this is the case, this trade is legal and TRAFFIC reports around 3 million *Galanthus* bulbs and 400,000 *Cyclamen* being exported from Georgia to the Netherlands. However, Kreyndlin reports that it has not been possible to completely eliminate the illegal trade and it remains at 2-3 times the legal trade.

CITES listing has proven to be a useful tool and seizures of 1000 branches of *Ruscus* 1000 Hellebore plants in transit from Georgia to Russia led to local police arresting the trader and to a prosecution. However, it has not been possible to have additional species placed on the CITES appendices and this requires the sponsorship of several of the range states which is not easy to obtain.

Research undertaken in 2001 suggests that the population structure of the species has been compromised in that there are no young plants. Growth is also very slow and it would take more than three years to replace harvested plants. Field surveys in 2004 failed to find any flowering or young *Ruscus* plants (2004 data). The reasons for the dearth of flowering plants is not clear but trampling has been linked to root damage and a subsequent fungal infestation. It appears that excessive trampling of sites during harvesting inhibits flowering and seed production in remaining plants and the combined effects together with habitat destruction by logging will lead to the extinction of these species in the wild.

There has been some work with harvesters to provide them with alternative incomes and also legal harvesting of the threatened species. However, since the harvesters only get a very low price for each plant and it is a wide-spread means of obtaining a supplementary income there are few economic incentives or sanctions to act as an incentive for cultivation or limitation of harvests. Even if this were not

the case the options for developing a legal harvest for CITES listed species in Russia are limited by Russian conservation legislation which makes it impossible to license any trade in Red listed plants.

Sources: Interview with Mikhael Kreyndlin 28 January 2008; Kreindlin (2003)

Although it seems certain that harvesting level are likely to be many times lower than those experienced in the Soviet Era this does not mean that there are no environmental concerns with current NTFP harvesting practices. Economic hardship in urban areas coupled with the withdrawal of relatively affordable bottled and canned NTFPs can result in destructive over-harvesting in forests close to the cities. This the case in the Tomsk City forest where berry yields have been dramatically reduced as a consequence of trampling and the aggressive use of berry scoops on the bushes¹⁹. The trend would therefore seem to be of lower levels of harvesting in relatively inaccessible areas coupled with intense pressure on accessible forests.

4.3 Research

The dramatic and abrupt cessation of funding since 1990 was devastating for many scientific institutions in the former Soviet Union. Staff have left, retired and been isolated on different sides of new political boundaries e.g. within the Baltic States. It is the hope of Paal²⁰ (1998) that the continuing significance of NTFPs in the boreal zone, economic stabilisation and with the assistance of international projects that NTFP research can attain previous levels. Although new research was not possible in 1999 the institutes were involved in the preparation of a series of technical publications, many of which related to NTFPs (Kukuev 1999) though it is not clear how many of the intended publications were ever produced. Russian research is poorly known. Demidova & Alhojärvi (2001) complain that most international projects seek to re-invent the wheel and too seldom seek to learn the lessons learnt from Russian research²¹ while Kukuev (1999) points out that this body of research is also poorly known within Russia and this prevents foresters making best use of available knowledge when devising NTFP management plans.

A web-search reveals that Russian scientists have been involved in recent European research projects – most notably the EU FP6²² EAN-Seabuck project (see Box 6). The wording of the description of this project seems to suggest that the intention was to share EU knowledge (Germany) of Sea buckthorn production with Russia and China so they commence growing the plant to supply Europe. However, research into berry horticulture including the development of new varieties has been a long-term preoccupation of Russian NTFP research for around 30 years. At least this project would have provided some income for the Berry research centres.

¹⁹ Interview with Valery Afanasyevich Konyashkin Head of Department of Natural Resources and Environmental Protection, Tomsk Oblast, 21 January 2008.

²⁰ Taimi Paal – Berry researcher based in the Institute of Forestry and Rural Engineering of the Estonian University of Life Sciences. <http://www.eau.ee/~tpaal/index1.htm>

²¹ There seems to be some justification to this claim. In a slide show promoting an 'Alternatives Livelihood Project' IUCN suggested that the missing factors in NTFP enterprise development where:

- no long term research to set norms for sustainable harvest;
- no awareness of decision makers;
- no clarity on tenure rights
- no marketing knowledge and production capacity in communities.

However, as shown above all of these are available in Russia – the only missing bit really is marketing knowledge and perhaps tenure under the New Forest Code and, as shown in Box 11, market intelligence alone is not effective – what is perhaps really lacking is entrepreneurship.

http://www.europeangreenbelt.org/download/meetings/lahemaa/08_Nikolay%20Shmatkov_IUCN.pdf

²² Framework Programme 6 – the EU funding stream to support research.

Box 6 Technology transfer for Sea buckthorn

Sea buckthorn (*Hippophae rhamnoides*) is a spiny shrub bearing edible berries which is native to Europe and Asia. Although it has been used as a foodstuff for centuries it has recently attracted attention as a nutraceutical²³ because of its exceptionally high vitamin C content combined with the presence of high levels of polyphenols and flavonoids and has been found to contain 190 bio-active compounds. In Europe it is in demand as an ingredient in a wide range of high quality food, cosmetics and pharmaceutical products and supply does not satisfy demand. High and consistent quality is a key requirement of European buyers and it has been found that this is often lacking in Sea buckthorn sourced from Asia and this has been linked to the harvesting and semi-processing technologies used. Commercial interest in Sea buckthorn in Europe has resulted in significant research on the cultivation, processing technologies and product development and marketing to suit the European market. As always it is considered easier to produce consistent high yields from 'improved', cultivated plants and there is interest from Europe in promoting cultivation of Sea buckthorn in range states. However, in Asia there is already significant plantings of Sea buckthorn to control soil erosion in arid and semi-arid areas though the berries are not routinely harvested. It was supposed that further cultivation of Sea buckthorn and primary processing of the berries could provide income for rural communities and help to slow down migration to the cities. It was also thought that the leaves and branches could also be used as animal feed and firewood.

In order to realise the tantalising prospect of the sustainable development of Sea buckthorn, led by German research and development organisations a large-scale technology transfer project was initiated under the European Community 6th Framework Program for research. This resulted in the EAN-SEABUCK: 'Establishment of European Asian Network for the development of strategies to enhance the sustainable use of Sea Buckthorn' project (COOP-CT-2005-016106) which ran from 1st August 2005 to 31st July 2007. The aim of the project was to establish a 'co-operation network between Europe, China, Russia and the New Independent States for a joint sustainable utilisation of Sea Buckthorn'.

The specific aims of the EAN-Seabuck project were:

- Establishment of a network for the trans-national technology and know-how transfer for a joint sustainable utilisation of Sea buckthorn in Europe, China, Russia and the NIS countries
- Improvement and exchange of knowledge between Europe and Asia in the field of Sea buckthorn harvesting and processing
- Achieve a better product quality and safety which permits to reach international quality standards and thus make the obtained products available for the European market
- Establishment of a long-term Sea Buckthorn industry in the targeted countries, supporting the rural sector development
- Strengthen the competitiveness of the European food industry in the use of bio-active compounds
- Support healthy nutrition in the Asian and European population
- Support of anti-erosion measures by incentives to the care of the Sea buckthorn plantations

The project was very successful in setting up a wide ranging network of interests around Sea buckthorn and the online database contains 349 institutional contacts across 27 countries ranging from research institutes to cosmetics manufacturers. The project activities were mostly related to information exchange, co-ordination of research and the preparation of training materials targeted at farmers and processors.

Russian involvement in the project was strong and the project database includes 58 contacts (through there are 203 listed for China and 29 for Germany). The distribution of Russian project partners is indicated below and shows where there is most intense interest in berry research and commercial wild collection. Cultivation of Sea buckthorn is still very small scale and apparently restricted to Altai Krai. The network includes 18 Russian wholesale, pre-processing and exporting companies who harvest wild Sea buckthorn (among other NTFPs).

²³ Nutraceutical is a term that has been coined from the combination of 'nutritional' and 'pharmaceutical' and is generally taken to refer to foods which provide health benefits. Over the past ten years this has been a rapidly growing niche market in the west. Nutraceutical products are exemplified by Cranberry juice which is marketed as much for its health promoting benefits (mitigating cholesterol build up, promoting heart health and as a remedy for urinary tract disorders) as for its taste or palatability. Many nutraceuticals are recently domesticated wild foods which are rich in antioxidants. The use of foods in this way is something which has always been a feature of Russian diets especially in the case of Birch sap as a springtime health tonic.



4.4 Enterprise development

The hope was that Soviet enterprises would be able to make a rapid shift to a free-market economy - which did not happen. However, there are exceptions as shown by the case studies of Bogara (Box 7) and Rodnik (Box 8). What is clear in both cases was the importance of the personality, business skills and tenacity of the entrepreneur. Unfortunately such qualities are difficult to create even with training. Other lessons is the role of product innovation as both continually test new ideas for designs or combinations of herbs as well as the introduction of new technologies. Both also have close relationships with the forestry authorities and their harvesters.

Box 7 Bogara – Birch bark crafts

ООО "Богара"



Bogara is a private company based in Tomsk specialising in high quality birch bark crafts using traditional techniques and forms with an eye for modern tastes and innovation. The company was founded in 1993 by Salischeva Oxana Yuryevna who was formerly a professional economist trained at Tomsk State University. Trading commenced in 1994 based on the production of 5 designs by 7 craftsmen in rented accommodation. Within a year the company was producing 90 articles and employing 60 people. In 2008 the company is a modern, outward looking enterprise with a core of professional staff (all administrative staff are graduates) employing 120 people on three sites to produce 600 product lines.

Production figures for 2007 were 25% up from previous years and is made up of:

17% - souvenir boxes for balsam

24% - be-spoke packaging for honey, tea and Vologda butter

59% - souvenirs, small containers for kitchen use and corporate gifts



Stages in production of bark craft items from bundles of raw bark at bottom left to completed samovar

Much of the output is be-spoke and for the tourist trade e.g. town name inscribed on a small item such as a key ring, bottles for high quality local gin containing forest fruits, honey boxes etc.. Bogara exports to Europe through a German distributor, a Russian émigré who has been selling bark craft items in Europe for more than 13 years. Bogara has also recently started advertising international direct sales through the company website. The company employs in-house designers and is aware of the need for continual innovation, consistency and quality to maintain market share in fashion orientated markets.

The company sources its raw material – birch bark - from sites which are due to be logged. Although it is possible to repeatedly strip harvest bark, it is easier to completely strip trees before harvesting thereby maximising the use of a resource which would otherwise go to waste. Prior to 2007 permission to harvest bark was obtained from the Forestry Department and since then it has been by negotiation with the leaseholders. Depending on the eventual use or handling of the timber, the loggers stipulate the amount of bark that can be removed and this may be the whole tree or just below the level of the first cut. Once harvested, bark is bundled into 50 kg bales and stored locally until it is needed. Bark can be stored for up to 30 years and re-hydrated so it can be worked. However, fresh (< 2 years) bark is best and it is usually used within a year of harvesting.

The bark is harvested by local teams of 10-20 people or members of families from local villages who are contracted to do the harvesting. Although the season is short (just a few days) a family team is able to earn the equivalent of 1 year's income from bark as well as also harvesting mushrooms, birch branches for use in Russian banyas and moss for Bogara and berries, mushrooms, nuts and branches of larch for other firms. Despite the work being lucrative there is a shortage of labour to do the bark stripping in all areas Bogara works.

There have been supply problems and last year (2007) there was almost no harvest as June was wet and cold so the trees flushed while it was still too wet to enter stands. The company reports that it is experiencing problems sourcing birch bark in Tomsk as the stands which are currently being logged are

located in remote, inaccessible areas or bogs which are impassable in summer. This shortage has promoted the company to approach the Governor of Tomsk Oblast to request that the removal of bark prior to harvesting is compulsory rather than at the discretion of the loggers. In order to maintain output the company has been sourcing from beyond Tomsk for the last few years. In 2008 harvesting was planned for Asinovsky, Pervomaisky, Teguldetsky, Ziryanovsky rayons, partly on Kemerovskaya Oblast where there will be timber harvesting. Bogara also has agreements with Ziryanovsky and Pervomaisky rayons and Irkutsk Oblast for 2009.

Although bark remains the main business, Bogara has also diversified into ceramics and also imports souvenir items to provide a one-stop shop for retailers and is also exploring the extraction of betalin from waste bark for a pharmaceutical company based in St Petersburg.

Source: Interviews with Salishcheva Oksana Yuryevna, Director. January & May 2008.
<http://www.bogara.ru>

Box 8 Rodnik – Ecotourism, herbal teas and banya products

Rodnik is a small family-run business situated in the southern part of the Republic of Khakasia, a remote republic in southern Siberia, situated between Krasnoyarsk and Tuva. Rodnik was established in the early 1990's and for the last 15 years has successfully operated an eco-tourism and NTFP business. For these purposes they lease an area of 163,000 ha of mountain Siberian pine (*Pinus sibirica*) forest which was probably formerly a GosPromKhoz. On this area they operate an eco-tourism camp 'Snow Leopard', high in the western Sayan mountains. In summer, the camp is provided with renewable electricity from a 20 kw micro hydro station on the small river. Tourism activities include hiking, fishing, rafting and hunting, and the camp can hold 30 tourists in winter and 60-70 in summer. There are several 'eco', footpath routes with campsites installed with proper camp fire places and rubbish collection units, and interpretation boards about the animals and plants of the area.



Plants suitable for NTFP use which grow in the Rodnik leasehold area include: pine nuts (*Pinus sibirica*), blueberry (*Vaccinium vuliginosum*), bilberry (*Vaccinium myrtillus*), Bagulnik Bolotniy (*Ledum palustre*), kurilskiy chai (*Pentaphylloides fruticosa / potentilla fruticosa*), golden root (*Rhodiola rosea*), and a variety of mushrooms (including *Boletus edulis* and Chanterelles).

Rodnik harvests a wide range of NTFPs, and sells herbal and medicinal teas and banya products. Herbs for tea are sold wholesale to Moscow, and as a packaged tea product within the Republic of Khakasia. Rodnik plans to expand their sale of

packaged tea but must first comply with complicated licensing rules of the Ministry of Medical Industry, for medicinal products. They also sell pine nut liquor ('Kedrovka'), made according to a secret recipe and now known as a local speciality.

Rodnik runs two medicinal massage & sauna clinics (phitobochka), one in the tourist camp and one at their headquarters in Abaza. Here, people are treated using medicinal herbs and tinctures made from forest products.

Rodnik employs around 20 people in the tourist camp and a further 12 at their headquarters in the town of Abaza. Mr Sanochkin, director of Khakasia, has won many awards for his business, including a bronze medal in the 2nd international festival of tea. One of the reasons for the long-term success of this small enterprise is the multitude of different activities carried out, which bring in profit at different times.

Rodnik shares facilities for drying and packaging herbs with another small family-run business in Abaza, 'Abazinskoe Promyslovoe Khozyaystvo', which owns a factory for drying and packaging NTFPs. This company produces NTFPs under the brand 'Tayozhniy Klad' (Forest Store), including juice from berries (cranberry, bilberry, blueberry, blackcurrent); marinated mushrooms and ferns; dried mushrooms, and jams. These products are selling well in the nearby city of Krasnoyarsk in collaboration with the small Krasnoyarsk company 'Pervotsvet' (owned by the daughter of the director of the company in Abaza), as people begin to realise the value of high-quality, healthy, natural and ecologically pure products from the local region.



'Tayozhniy Klad' dried mushrooms



Bottled Birch sap

The director of Rodnik pointed out three main barriers to the sustainable development of his enterprise:

- 1) Lack of entrepreneurial capacity such that he has had to come out of retirement to maintain the enterprise
- 2) Lack of inventory data to form the basis of leasehold management plan so that most NTFP harvesting has to take place outside the leasehold area
- 3) Difficulties in obtaining certification for herbal products which means products can only be sold within Khakasia. Such problems are compounded by a lack of laboratory facilities outside Moscow.

Source: Interview with Valery Sanochkin, Director of Rodnik 24 January 2008

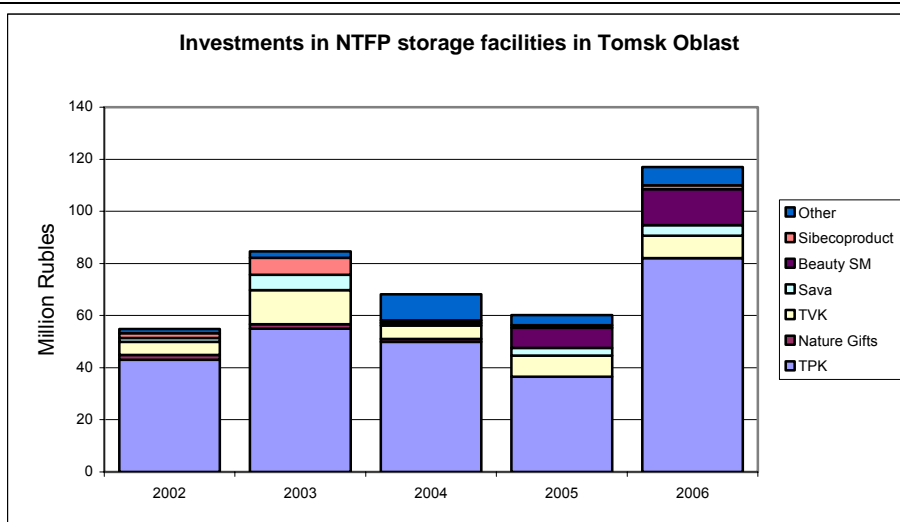
Visit to Rodnik August 2008 by Katy Harris, TRN

www.rodniktd.ru (in Russian)

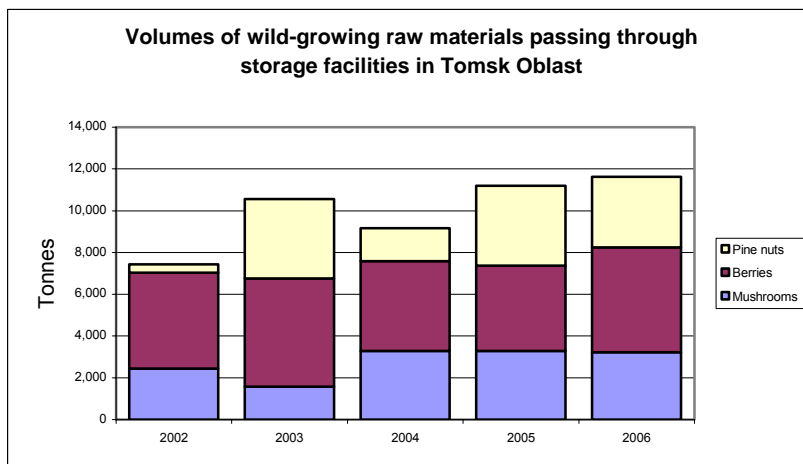
It appears that Bogara and Rodnik have established themselves as successful enterprises more or less on their own. However, there are also successful businesses in berries and mushrooms which have developed a business model based on wholesale of raw or semi-processed foods (berries and mushrooms) where there is co-operation to build shared storage facilities (Box 9). Unfortunately the source for this information gives no details of the ownership and management of the facilities mentioned in the report. It is presumed that since the report originated from the Department of Natural Resources and Environmental Protection of Tomsk Oblast that these facilities were at least formerly State-owned – perhaps part of the GozPromKhoz or Tsentrosoyuz. The relationship between the investors and the owner of the facilities is also unknown. It maybe this represents a trade association along the lines of those described in the next section or a series of one-to-one contractual agreements between the investors and suppliers. Whichever is the case this appears to be an intriguing example of pooled investment in the NTFP supply chain.

Box 9 NTFP enterprise investment in Tomsk Oblast

From around 2000 there has been steady growth in NTFP-based enterprises in Tomsk Oblast. A few of these such as Sibecoproduct Ltd are among the larger enterprises of their type in Russia and export globally while others are more focussed on sourcing raw materials for manufacturing (e.g. beauty products). Whatever the scale these enterprises require storage facilities to deal with the influx of large volumes of seasonal, perishable products from remote areas. In 2006 there were 45 commercial companies and private entrepreneurs who were engaged in the collection and co-operated to create or rehabilitate a supply chain and storage facilities for wild-grown flora in Tomsk. The development of these facilities is largely funded by these companies with the majority of the investment made by the top five companies which together account for 85% of the volumes passing through the system. These investments have been significant and continuing as shown below.



This level of investment has been sufficient to create a powerful storing and processing complex. In 2006 season this complex operated 235 stationary and 110 mobile refrigeration stations equipped with 150 fridges with a combined capacity of 44,000 m³, 160 stationary and 155 mobile drying chambers and 300 food preparation units. These are supported by more than 180 vehicles and 25 barges and boats, round-the-clock communications and more than 25 specialised mobile collection teams (each employing 40-50 people). This supply system is not all within Tomsk and more than 25 mini-production units specialising in initial processing have been set up in remote northern settlements. The creation of mobile facilities has meant that production from remoter areas of the Oblast. The supply network has also extended outside the Oblast to neighbouring regions (e.g. Altai and Novosibirsk) and in 2006 20-25% of production was from outside Tomsk. The volumes of 'wild-growing raw materials'²⁴ that passed through the storage facilities in 2006 were: mushrooms - 3,217 tons, berries – 5,989 tons and pine nuts – 3,373 tons and as shown below volumes have been slowly increasing.



In 2006, all this activity generated 700 million rubles turnover and employed 3,500 people directly (seasonal) and provided a share of the 563.6 million rubles spent on NTFP raw materials to the 100,000+ villagers who undertook the collection of the plants from the forest. The returns in taxes from the economic activity derived from the collection and use of these wild resources was in the region of 50,050 million rubles in 2006.

These figures confirm the continuation of trends observed in the UNEP report of an integrated assessment of the Tomsk development plan which highlighted both the economic and social potential of the NTFP sector. Headline figures in this report were a healthy sector already worth US\$ 100 million (not counting harvesting and transportation costs) with an average annual investment growth rate of around 60%. The estimated return on investment was impressive with 1 million rubles of investment giving rise to an increase in output of 124 tonnes. Back-of-the-envelope figures suggests this could equate to 8.4 million rubles of profit to enterprises and 480,000 rubles of tax returns. This gives the

²⁴ These facilities were also used for fish and vegetables.

NTFP sector (called 'traditional trades' in the UNEP report) the highest sustainable development potential (8.45 with next highest being 5.48 for education and research). It certainly places the NTFP sector over agriculture and UNEP suggest that the unique role of NTFP micro-economy has the potential to offset unemployment and falling incomes of the declining agricultural sector and the proposed removal of state agricultural subsidies. The report went on to suggest that a significant barrier for the development of the NTFP sector is the 'lack of reliable business schemes that ensure market access for a producer without numerous intermediaries'. However, the storage supply chain appears to be performing this function though there is still a long way to go before harvests come anywhere near the estimated resource base of 86 thousand tonnes of mushrooms, 23 thousand tonnes of berries and 27 thousand tonnes of pine nuts. Nevertheless there remains a risk of resource depletion especially close to population centres and the Tomsk forestry authorities are keen to undertake a more detailed resource assessment and introduce sustainable management planning.

The recommendation of the UNEP report is to: 'Develop a regional policy to support traditional trades based on the principles of sustainable nature use, taking into account actual opportunities and needs of the area as well as opportunities in the external markets. This will make a significant contribution to sustainable development in Tomsk Oblast.' It would appear that the authorities in Tomsk are doing precisely this and it will be of considerable interest to monitor the impact and benefits of growth in the Tomsk NTFP sector.

Source: перевод document provided by Department of Natural Resources and Environmental Protection, Tomsk Oblast - January 2008, UNEP 2006

4.5 Trade associations

In 1990, large numbers of well educated people found themselves unemployed and in a wave of optimism set about establishing NTFP enterprises to exploit the gap in the market created by the collapse of the Soviet period NTFP supply chain (see Box 10). However, without the centralised supply chains, a lack of marketing and entrepreneurial expertise, prohibitive taxation and inappropriate or corrupt regulations together with a general dearth of cash for investment or to purchase products meant that these nascent enterprises found themselves in all but impossible conditions. Several trade associations were formed of small NTFP companies to explore the potential for mutual support, pooled resources and joint marketing. Two of these in Krasnoyarsk Krai and Khabarovsk Krai were 'adopted' by the USAID FOREST project with the intention of building capacity and export-orientated market networks. Focussing development aid on SME development is part of the USAID policy of stimulating private sector development to kick-start general economic development. In Krasnoyarsk this did not work particularly well as shown in Box 10. The trade association in the RFE²⁵ has proved more durable and remains active and its members have continued to benefit from other development and conservation projects from Japan, Canada and through IUCN²⁶ (see Box 11 for case study of interventions on behalf of the Udege people). However, even in the RFE, enterprises have not flourished despite considerable assistance stretching from the early 1990's (Profound 1994) to the present and from a range of partners including IUCN and CIDA (Shmatkov & Brigham 2003, IUCN 2005b & 2005c).

Box 10 Krasnoyarsk NTFP Users Association

With the demise of the Soviet Union in 1992 the State-run NTFP supply chains described in Figure 1 came to an abrupt end with far reaching consequences for the rural economy and the urban consumers of the vast amounts of foodstuffs sourced from the forest. At the same time many educated and capable people laid off from other state enterprises found themselves without work and sought to embrace the opportunities promised by private entrepreneurship. Relatively quickly a small but enthusiastic group of

²⁵ Initially the Russian Far East Association for Non-Timber Forest Products based in Khabarovsk established in 1995 <http://www.civilsoc.org/nisorgs/russeast/notimber.htm>. There have variously been other associations and several names but there is a core of people who continue to work to support NTFP enterprise development among the indigenous peoples of the RFE (see Box 11 for an example of work with the Udege people).

²⁶ Anatoly Lebedev, BROCC, pers comm. 28 January 2008.

entrepreneurs emerged in Krasnoyarsk each establishing micro-enterprises based around individual products and many of whom recognised and motivated by the social benefits of maintaining the NTFP trade to rural economies. Unfortunately these nascent enterprises found themselves in an almost impossible situation facing labyrinthine and often corrupt bureaucracy at each stage in the set-up of a new business, inexperience with entrepreneurship, lack of sophistication in products and market research coupled with difficult supply and distribution logistics in the vacuum left by the collapse of the GozPromKhoz (the Tsentrosoyuz is still operating but at a fraction of its former capacity).

In 1998 a group of entrepreneurs came together to form the Krasnoyarsk NTFP Users Association as a marketing and trade group. During 1999 the Association collected information on the available resources and how they are used and by 2000 had 15 members which included a state-owned enterprise and two NGOs with the remainder being private or limited liability corporations. Most members were involved in warehousing, manufacturing and wholesale with around half also retailing their produce. In 2001 although only having a small membership the Association probably represented around half of the NTFP enterprises.

Shortly after the formation of the Association the USAID FOREST (Russian Forestry Resources & Technologies Project) project started work in Krasnoyarsk. This was a five year project commencing in 2000 managed by Winrock International which covered three regions of the RF and was concerned with (1) forest fire control (2) forest pests and (3) NTFPs. The fledgling NTFP Users Association was selected as the focus for support to small enterprises in Krasnoyarsk. Based on the recommendations of McCaleb (2001) the FOREST project funded a series of activities for the Association including trade fairs, visits by groups of US experts and volunteers and training in fundraising for leaders of NGOs and community groups. The reports of the trade-related activities are generally good with good contacts being made between Krasnoyarsk enterprises and buyers outside Russia (including for supply of Ayurvedic medicinal plants to Sri Lanka. At the start of the FOREST project the Association moved from being a flat voluntary organisation to one headed by an executive with a full-time salaried Executive Director with offices but retaining a voluntary Chair. At the time it was recognised that the appointed Director may well have a conflict of interest especially when it came to the disbursement of the benefits of the FOREST project. However, the decision to channel capital investment grants to individual enterprises rather than collectively to the Association was where the project really foundered. Grants made to specific companies served to undermine the co-operative nature of the association as the executive grabbed the money for their own enterprises rather than to benefit all members of the Association. Most of the equipment bought with FOREST grants is either lying idle or underutilised and many of the companies have ceased trading. One initiative that was for the whole group is the Siberian Association of Natural Products marketing website http://krasarmy.ru/index_e.php used 'eco-pure' and 'Siberian' as selling points and was directed at US buyers. Although still available it appears that the website has not been updated since 2003 and is probably inactive.

Competition for US resources split the association and many of the benefits of the FOREST project were appropriated by a small cabal within the Association – grabbing things for themselves rather than working for the common good. This was a grave disappointment to the original leaders of the Association who had hoped that the project could have helped with certification of medicinal herbs as well as help with product standardisation and to share facilities to improve the quality of packaging (e.g. heat sealing plant) for the benefit of all members.

By January 2008, Vladimir Shinok the former Chairman of the Association assessment of the current situation was that:

- only half of the association companies are still trading
- raw materials have significantly increased in price
- best way forward is probably to have some sort of centre for research and development
- an association of NTFP enterprises is probably not possible

Back in 2001, McCaleb's assessment was also that a NTFP trade association was probably not viable because at the time it had too few members, was too divergent in products (grouping mushrooms, nuts and herbs together), too few resources and experience to effectively represent and develop several entire categories of products. This turned out to be prophetic but it may be that it was the immaturity of the institutions rather than the concept of diverse NTFP trade associations which was the root cause of the failure. Global experience suggests that despite the difference in the products NTFP enterprises share sufficient similarities to self-identify as a trade grouping and distinct economic sector. It seems likely that some form of NTFP trade association will arise in Krasnoyarsk but that greater internal governance and institutional capacity will be needed to make it successful.

Source: Interview with Vladimir Alekseevich Shinok 23-24 January 2008; McCaleb (2001)

Box 11 Sikhote-Alin, Primorsky Krai

The Russian Far East is an area with extensive forest containing significant biodiversity including the iconic Amur tiger. The areas of highest biodiversity value are the old growth areas of the Ussuri taiga along the Sikhote-Alin mountains. For at least the past 1,500 years these forests have been home to the Udege, an indigenous people who until the Soviet period subsisted entirely on hunting, fishing and gathering from the forests. During the Soviet period the forests remained largely undisturbed though the people were settled and as a consequence lost much of their culture they continued to earn an income from sale of NTFPs to the regional GozPromKhoz.

In the early 1990s, two important changes occurred: state-mediated sales of bulk NTFPs ceased and the admittance of external logging companies lead to direct threats to the remaining old growth forests in the Udege forests. BROK (Bureau for Regional Outreach Campaigns) and other local NGOs (.e.g Taiga, the Indigenous People's Association and Greenpeace) protested against plans for large scale logging by the Korean Hyundai Group in the pristine forests of the upper Bikin valley a key hunting territory of the Udege people. The campaign successfully prevented authorisation of logging and in 1998 BROK together with Greenpeace and the Primorsky administration proposed the creation of a 'Territories of Traditional Land Use (TTLU)' to cover the Bikin valley. There have been several other protected areas either proposed or created including the Udege Legend National Park and the Sikhote-Alin World Heritage Site. In early 2009 protected areas within the region remain unclear and those which are designated have no money or infrastructure.

The Udege themselves wished to revitalise the core elements of their culture including a reverence for nature and to continue to use the forests as a source of income without compromising its biodiversity values. On the back of the international interest in the protection of the Sikhote-Alin forests there were a number of internationally-funded projects to promote the development of livelihoods for the Udege and other indigenous peoples based on NTFP export. One of the first inventions was to form the RFE Association for the Use of Non-timber Forest Products (supported by the USAID FOREST project). Early reports such as those commissioned from ProFound (de Beer 1998, de Beer & Zakarenkov 1999) recommended the formation of producers associations to undertake market research, product development and placement and promote both the RFE, its products and peoples.

Over the past fifteen years there have been various initiatives by several donors to assist in the development of NTFP enterprises among the Udege and other indigenous peoples:

- Some looked west – for example the visit of the president of the NTFP association to the UK in 2003 (BROK 2003) to explore the market potential of organic certification and the export of RFE NTFPs in UK and European markets. Such initiatives were usually funded through European NGOs such as WWF, Greenpeace or Survival International.
- Some looked east – to markets in Japan and Korea - the closest and potentially most discerning and lucrative markets. At least one of these initiatives were funded by NGOs such as Friends of the Earth-Japan looking to facilitate the importation of medicinal plants from the RFE.
- Some looked inwards at market development within the Russian Federation e.g. the IUCN-Russia International NTFP Fairs held in Moscow to showcase NTFP products – the 2nd fair in 2005 took the theme 'Gifts of Forest – Culture of Use' and was intended to emphasize the sustainability of NTFP use and their potential to revive the culture and economic independence of indigenous peoples (IUCN 2005a). Interestingly this project was supported by bilateral aid agencies such as CIDA and the Royal Netherlands Embassy and was channelled through Russian NGOs.

Unfortunately, despite these attempts and the existence of viable markets for products from the RFE export of NTFPs from the region remains at low levels. This is attributed to a lack of entrepreneurs and business innovators capable or willing to take on the challenge of creating a successful enterprise – a task which is difficult in every case, but is here compounded by a hostile fiscal and regulatory environment. Although these problems could be tackled by training, mentoring and the formation of support structures – international funding for NGO work in the Russian Federation has more or less dried up in the past five years and the promise of NTFP export-led development has just about withered away.

On a more positive note, in June 2007 the Udege Legend National Park came into existence though reports of illegal logging are also at an all-time high. Whether the Udege will ever be able to rely on export of NTFPs as a secure livelihood remains to be seen and is unlikely to happen without concerted support and further international investment.

Sources: Interview with Anatoly Lebedev 28 January 2008; de Beer (1998), de Beer & Zakarenkov

5 Barriers and opportunities

This section attempts to bring the story up to date by describing the current situation and doing some critical analysis to see where interventions would be most appropriate and effective.

5.1 Reforms and new institutions

The organisation of regulatory authority at Ministerial level has been subjected to various re-organisations over the past 20 years. A notable change has been the amalgamation of the numerous Ministries of the Soviet Union into, fewer units more in line with international norms. Thus the former Ministry for Hunting and Ministry for Fishing were brought into the Ministry of Agriculture. Fortunately after a period in the Ministry of Natural Resources along with mining and water resources forestry has now also been transferred to the Ministry of Agriculture. However, the administration of the various resources: plants, animals and fish remain under separate jurisdictions and devolved to different levels as shown in Table 4. Unfortunately this type of institutional separation is all too common and there is little that can be done about it. However, at the forest level it seems that the agencies generally work together and it is apparently generally recognised that NTFPs are a cross-cutting issue²⁷. Nevertheless, from the perspective of an entrepreneur looking to acquire and manage a NTFP lease there are going to be a lot of negotiation and bureaucracy to overcome to get all the elements required e.g. quotas and permissions in place.

Table 4 Institutional responsibility for forest resources

Resource	Devolved	Regulator	Ministry
Forest plants	Yes	Federal Forest Agency (Rosleskhoz) Regional Forestry Administration Lesnichestvos	Agriculture
Game	?	State Committee for Environmental Protection	Agriculture
Freshwater fish	Partial	State Committee for Fishing	Agriculture
Herbs (teas etc.)	Yes?	Roszdravnadzor	Health
Pharmaceuticals	No		Industry, Science & Technology

In 2007 the new Forest Code brought in wide ranging changes to the organisation of forestry. Besides placing forestry within the Ministry of Natural Resources the Code also devolved administrative responsibility for forests to the regions. There is generally some disquiet among NGOs with the new Forest Code and the large amount of new legislation, omissions and interpretation required to patch together a socially equitable and sustainable institutional framework for forest management from the new institutions. A fuller report of NGO concerns with the implementation of the new Forest Code is available in a recent report prepared by the Taiga Rescue Network (Lesniewska et al 2008).

Perhaps the most fundamental change is that the new structures separate administration from enterprise and devolve responsibility for both to regional (i.e. Oblast, Krai etc.) level. Each administration has only general guidance on the form of the new structures and there are significant differences in interpretation and organisation between

²⁷ At least this is the impression gained from meetings with forestry authority staff in Tomsk Oblast, Krasnoyarsk Krai and Republic of Khakasia in January 2008.

administrations. However, most seem to have identified four separate functions and placed them in separate institutions along the following lines:

- Department of forest management and its constituent districts – Lesnichestvo which look after day-to-day forest management
- Department of inspection and monitoring – responsible for checking legality and monitoring forest condition
- Commercial enterprise which will be state owned but able to act as an forest operations enterprise for the purposes of sanitary and other non-economic felling

As an example of the way these new institutions related to each other and other functions of the regional administration Table 5 gives the forest governance structure as at January 2008 for Tomsk Oblast with the state-owned commercial enterprise shaded yellow.

Table 5 Tomsk Oblast agencies involved with NTFP management or regulation

Scale	Institutions				
Regional	Tomsk Oblast Regional Government				
	Department for the Development of Entrepreneurship and Real Sector Economics			Department of Natural Resources and Environmental Protection + 70 staff	Department of Social and Economic Development of Villages
	Committee for state forest control and inspection + 4 staff	Committee for Regional Forest Policy	Committee for the development of forest complexes and forest use		
		Tomsk Forest Management + 60 staff	Tomsk Forest (commercial, state-owned enterprise)		
Department of Forestry and Reforestation					
Local 21 Lesnichestvo	State inspectors + 16 staff across all districts	+ 20 staff in each district	+ 1100 staff across all districts		

Sources: Interviews in Tomsk 20-22 January 2008; Presentation by Bogdan Sergeevich Khmelniitskiy, Tomsk Regional Forest Policy Committee to TRN Western Siberia network meeting 28-29th January 2008, Akademgorodok, Novosibirsk

The new arrangements make it possible for a private enterprise, including foreign companies, to take out a long term (49 year) lease for NTFP use. The first of these have been for former GosPromKhoz such as the leases taken out by Rodnik (Box 8) and AO Samarga (Box 4). It is not clear whether it is only such areas (Group I) for which a NTFP leases are possible or whether it is possible to take out a NTFP lease for Exploitable (former Group III) forests. Not all NTFP enterprises would want leases and Bogara (Box 7) are happy to work with loggers to extract the bark resource on timber lease areas. Again this is a continuation of former practices when turpentine and sap were harvested immediately prior to felling.

In Krasnoyarsk enquires at the commercial unit (Krasnoyarsk Forest Management) revealed that it was also going to be responsible for NTFP harvesting with the impression this might mean setting quotas for harvesting as well as operating as an NTFP

enterprise²⁸. Although in January 2008 the institutions were very new and a lot of details had yet to be decided it is not clear whether this means that Krasnoyarsk Forest Management will take out NTFP leases or will simply organise NTFP collection on vacant leases. The upshot of this would be an institutional arrangement similar to the former GosPromKhoz (though hunting was not mentioned).

Discussions in both Tomsk and Krasnoyarsk administrations concerning aspirations for NTFPs were markedly similar and are possibly echoed across Siberia if not the whole of the RF. Officials expressed great concern for the level of poverty and lack of economic opportunities in rural communities formerly supported by forestry activities²⁹. That this should be the case is reinforced by Krott et al (2000) who noted that 'A strategy for sustainable social development has to take into account the specific conditions of transition: the shrinking wages, the high importance of additional services (provided by forestry employers), the hegemonical position of the state forest enterprise within small villages and the survival strategy of portfolio economy.' And that 'state forest enterprises are connected in a very dense and complex way with the portfolio economy of the people in small villages'.

Formerly harvesting of NTFPs provided employment for many people as well as opportunities for small enterprise development (mostly processing perishable resources e.g. making jams). In the present economic climate there appear to again be good market opportunities for NTFPs but although the forestry enterprise could possibly take over the functions of the GosPromKhoz this will not work without a route to market which was formerly provided by the Tsentrosoyuz. Although the Tsentrosoyuz still exists the storage facilities in the rural hinterland are often all but derelict. The officials all hope that it may be possible to interest a (foreign) big investor who can re-establish the storage facilities and ideally take out leases as well thus providing employment for villagers. It is accepted that this may result in local over-harvesting but it is assumed that NTFP enterprises would be used by villagers to diversify their incomes until new jobs or opportunities arise or people save enough to migrate to urban areas. It is also recognised that large scale commercial NTFP operations may well damage the forest in the long term but that this could be acceptable as by the time yields fall everyone will have moved onto other employment³⁰ and the forests can then recover. This might appear somewhat cynical and not in line with sustainable forestry. However, this is not the first time such sentiments have been expressed. Prescott-Allen & Prescott-Allen (1996) working on the 'egg of sustainability'³¹ indicators for IUCN suggested that it can be acceptable to over-harvest for a period of time to secure human wellbeing as long as the biodiversity benefits outweigh the losses i.e. increasing human wellbeing secures the ecosystem. Nevertheless, this does not seem like a useful pitch to a foreign investor who may well wish to build a longer-term future for their enterprise!

The Forest Code requires that NTFP leases have a management plan prepared to approved standards. Unfortunately the standards have not yet been defined which means the lessees and authorities are struggling to understand how to fulfil their responsibilities. The Forest Code prescribes a forest planning system comprising the following elements (taken from Lesniewska et al 2008) and it is supposed that these are also intended to apply to NTFPs.

²⁸ Interview with Victor Podovcor and Valery Petrovich Ovchinnikov of Krasnoyarsk Forest Management 24 January 2008.

²⁹ Indeed the state commercial enterprises have been established partially to provide employment for staff laid off in the transition from leskhoz to lesnichestvo.

³⁰ Interview with Valery Petrovich Ovchinnikov, Forest Service Agency, Krasnoyarsk 24 January 2008.

³¹ Which places human well-being as the yolk in the white of the environment.

State forest inventory – to be introduced across the RF by 2020, there is as yet no information on whether or how NTFPs will be represented in this inventory

Forest plans – should be written for all lesnichestvos by 2009 to cover zoning for use and conservation. In mid-2008 it was not clear how these can be drawn up as there are uncertainties in land tenure, current inventory data and respective responsibilities of regional and municipal authorities.

Forestry management regulation (reglament) – this will be a management inventory and will determine permitted forest use in the form of an annual allowable cut (AAC) by and harvesting restrictions for each lesnichestvo again to be prepared by 2009 and valid for ten years.

Forest development plan (Projekt osoyeniya lesov) - the main planning document for lease areas. Preparation of this plan is the responsibility of the lessee using guidelines provided by the forest service and valid for ten years.

As pointed out by Lesniewska et al (2008) it is hardly possible for the new authorities to get all of this in place in time and many of the required guidelines have not yet been prepared and there is little to no funding. The difficulties of establishing the required plans for timber are considerable but pale compared to those for NTFPs.

The general economic collapse in the 1990's affected all aspects of forestry including inventory at all levels. Thus field survey ceased and the databases of NTFP yields were not maintained. The most recent data for many regions was collected in the mid-1980's and is considered too outdated to be useful for planning by the Tomsk forestry administration. Although there are national maps prepared by VNILM based on remote sensing in 1999 these are still not sufficiently detailed for the preparation of Forest Development Plans for NTFP leases.

The need for up-date inventory was repeated on many occasions during the authors' visit to Siberia in January 2008 and also as a priority for NTFP development in Arkhangelsk by Chibisov & Demidova (1998). There is an urgent need for good quality, field survey data on a wide range of NTFPs to provide a strategic basis for allocation of leases, setting quotas and as a basis for the Forest Development Plans³² (UNEP 2006). Without funding and support it is difficult to see how the required research and development of NTFP leasehold plans can be done. There is little experience in the RF of statistically based inventory methods which will be required to cover the areas involved and there is a need for capacity building in this area.

There is also long experience and research on NTFPs in the RF which would provide a basis for evaluating management systems against international standards such as those developed by UNCTAD (2008) and by the Medicinal Plant Specialist Group (2007) for medicinal plants.

5.2 Rural development

It is clear that a key driver for the re-commencement of commercial NTFP harvesting is rural development. There has been mixed success with enterprise development as shown in Section 4.4 and there have been numerous attempts to define why this is the case and identify the critical barriers to success. For example:

Chibisov & Demidova (1998)

³² Valery Arkanasievich Kopushyup, Bogdan Sergeevich Khmel'nitskiy, Vladimir Viktorovich Chitorkin, Yuriy Mixaylovich Kizeev. January 2008

- Low levels of investment in NTFP harvest and distribution both by potential investors and extant enterprises
- Difficult and low productivity for manual collection of berries and mushrooms
- Low purchase prices for wild berries and mushrooms
- Rural labour shortages
- Lack of reliable and comparable NTFP inventories
- Inadequate weather forecasting
- Lack of resource studies at forest management planning level
- Absence of effective protection measures for berries and mushrooms
- Areas of high production are inadequately protected from over-harvesting

Kukuev (1999)

- shortage of circulating assets
- lack of credit relaxation
- insolvency of consumers
- high rates of bank credit
- high railway cargo tariffs
- lack of investment in processing facilities

Demidova & Alhojärvi (2001)

- Intensive intrusion of foreign foodstuffs
- Priority given to big, high-tech enterprises during the process of privatisation which meant that SMEs were disadvantaged by the new systems of taxation
- The amount of credit available for to SMEs to modernise equipment was limited

These authors conclude that without macroeconomic reform of investment in the RF most efforts are doomed to be partial or restricted measures having limited impacts on the development of the sector

While the World Bank (2000) and EBRD (2000) add

- lack of local financing for rural businesses

In the past NTFPs were bought in large quantities but it seems interest fell off and are now weak – why is this? Most commentators blame the poor state of the economy and the decrease in consumer buying power, as most NTFP are considered luxuries. Those who can afford them appear to be more interested in imports, or at least in products with a more sophisticated presentation, such as those from Moscow. Some say that the trend is changing toward greater interest and pride in local products, and this is reflected in preliminary market research. Certainly there the market for natural, artisanal products is growing in more affluent countries outside the RF.

From 2000, several international donors and projects came and provided an external perspective on what was required. Many of these wished to work with indigenous peoples and focussed on the RFE. The approach commonly taken by international NGOs (and other people-focussed development aid) is to establish socially inclusive micro-enterprises and to 'cut out the middle man' and link these enterprises to trade partners in wealthy countries so maximise returns to the community and provide a source of ethical products. This is the ethos behind the interventions of the IUCN-Russia NTFP projects (IUCN 2006)³³ which undertook the following activities on the premise that market access is a key barrier to enterprise development:

- NTFP small business development and traditional knowledge conservation project in the RFE (CIDA, 2000-05)

³³ http://www.europeangreenbelt.org/download/meetings/lahemaa/08_Nikolay%20Shmatkov_IUCN.pdf

- Assessment for sustainable traditional crafts production in Magadan Region (IFC, 2003)
- Assessment of NTFP harvesting on biodiversity of Kamchatka (UNDP, 2004)
- NTFP project in Kemerovo Region (DOEN, 2005)
- Annual Traditional Knowledge Camps (various donors)
- Annual NTFP Fair and Forum in Moscow (various donors)
- Marketing opportunities for NTFPs of the Russian North-West (BBI-Martra, 2006-2008)

The Americans have provided microfinance to address the problems of under-funding (USAID 2005).

However, as shown in the case study of the Sikhote Alin (Box 11) market-orientated initiatives have not been overtly successful even with buyers in Japan wanting to purchase from the RFE but there is no-one willing to commit to meeting the required quantities and opportunities have slipped by. In the RFE at least part of the problem is that the indigenous communities are small and lack entrepreneurial capacity³⁴ though it is suggested that the lack of communication infrastructure and language problems are the main reason this initiatives have failed (Katy Harris pers comm.).

One way of addressing the lack of entrepreneurial skills might be to train groups rather than individuals in the hope that this will draw out people with the required entrepreneurial attributes. Another might be to establish a non-indigene led enterprise and employ the indigenous people as collectors much as the GosPromKhoz did but current rhetoric favours a more participatory approach to development.

It not just indigenous peoples who are not responding as expected to enterprise opportunities as shown in Box 12 for Kurlek in Tomsk Oblast people where people are apparently apathetic although many use NTFPs and have diversified (or portfolio) incomes they are not innovating with them or looking to expand into a full time enterprise. The reluctance to respond to economic stimuli (a willing buyer) and a subsequent lack of berries has been given as the reason for the collapse in at least one berry processing enterprise (Panteleeva 2004). This latter reason is one that may be underestimated as many of the CIDA, USAID, IUCN etc. projects focussed on marketing and market access without prior investigation of supply chains, available resources or yields which probably contributed to the high failure rate of NTFP marketing initiatives.

Box 12 Kurlek village, Tomsk Oblast

Kurlek village was founded in 1905 70 km south-west of Tomsk on the river Tom as a forestry outpost shipping timber to the city. In 1937 a lespromkhoz (timber processing unit) was built and the village grew to accommodate the forestry workers. By 1940 there were 500 children enrolled in the village school. As logging moved into the forest staging posts were set up along the road with the “13th km” and “18th km” posts becoming a gulag for exiles from the Baltic. These posts were abandoned in the 1960’s and the people moved into Kurlek which now consists of a main village and two subsidiary settlements. The main source of employment in the village was forestry, either logging or in the Leskhoz office. The timber industry declined sharply post 1990 and mass unemployment followed by out-migration and significant hardship for those left behind. Rising food costs and shortages resulting from the removal of state subsidised food supplies the local population turned to their dachas and wild-harvested forest foods. The 2006 census gives Kurlek a population of 1351 with just over half the people of working age and 25% unemployment. From being the sole employer the state now only employs 70 people in the

³⁴ This is a rare skill and only around 13% of the population in England, where people are familiar with the free-market economy are self-employed or business owners [Household survey of entrepreneurship 2005, DTI, UK].

Leskhoz with the Lespromkhoz which was recently privatised only employing 15 people. The 2007 changes in forest administration are expected to increase unemployment as it is downsized or perhaps even closed. Unemployment and related alcoholism (rising amongst young mothers) are major social problems which are exacerbated by poor quality infrastructure (roads and public services) and water contaminated with iron.

In 2007 a questionnaire survey was undertaken of 55 of the villagers from all walks of life and ages in order to determine the extent to which people use the forest. All 55 respondents collected NTFPs with mushrooms, firewood, berries, herbs, pine nuts, pine resin, insects (sic = bees?), hunting and birch bark being listed as resources harvested from the forest. Once collected 40% of the collectors consumed the products fresh while 30% said they stored all they collected for use in the winter while 15% stored half and ate half fresh. It is possible that wealthier people consumed the NTFPs as a seasonal treat while the poorest were using them as a basic necessity. What is perhaps surprising is that only 3.3% of the sample (2 out of 55) sold any part of what they had collected and the forest no longer contributes in any way to incomes for half of the villagers.

In Soviet times villagers would have collected NTFPs and perhaps even run small processing units (drying and jam making) for sale to the Gozpromkhoz. Why is it that sales have all but ceased and there are no local enterprises processing NTFPs?

Poor infrastructure and the demise of the relaxed, high volume, low quality, moderate price buying regime of the Gozpromkhoz are obvious problems but there are also social and cultural barriers to enterprise development. Individual passivity and disempowerment are evident in the questionnaire responses which showed that only 40% of the villagers felt that they had the freedom to decide their own future (scored ability to determine their future as more than 8 out of 10). This in turn makes for a weak sense of community with only 25% of the populace expressing any pride in their village (said it was a good place to live). This is perhaps not surprising given the village itself is barely 70 years old and is composed of forced migrants. Civil society remains weak and collective action – say the development of a NTFP co-op is probably not going to be spontaneous. However, of the organisations which could potentially assist them 37% of the villagers distrust international companies and 40% distrust non-governmental organisations while nearly half the villagers simply are too unfamiliar with such organisation to know whether they could be trusted or not. Set this against a backdrop where more forestry jobs are likely to be lost and access rules to the forest are changing and it seems unlikely that NTFPs will be able to deliver locally based enterprise development without considerable external support and facilitation. At present it is the devolved forestry authorities which are taking up this challenge (UNEP 2006) along with urban-based Russian enterprises such as Lesnoi Tsar a wholesale and exporting company based on Tomsk which already sources pine nuts and mushrooms from Kurlek. The policy of Lesnoi Tsar is to buy pine nuts from the villages near Tomsk and they offer good prices. However, this often translates into a visit to the village by a buyer who makes an arrangement with a villager with a suitable shed or yard and places a notice in the village shop that people should deliver nuts to the 'middle man'. Although effective this does tend to keep the relationship between the collector and buyer ad hoc and opportunistic rather than building secure incomes, confidence and a basis for local value-addition.

Source: Ward (2007)

Rather than looking for ways to cajole people into the free-market there have been a few studies which have stepped back and looked at the situation from a more anthropological perspective. The conclusions from work in the Taimyr Autonomous Region (RFE) are that people are rejecting the free market economy and are instead reverting or re-discovering kinship based tenurial systems and communal subsistence economies. This is interpreted not as a deficiency in the people but a rational reaction to the perceived risks of subsistence activities and enterprise development. The former serves to ensure the community as a whole survives while the latter is perceived as high risk (and it is) especially in the light of repeated failures to make a success of enterprises (see Box 13).

Box 13 Survival strategies in Taimyr

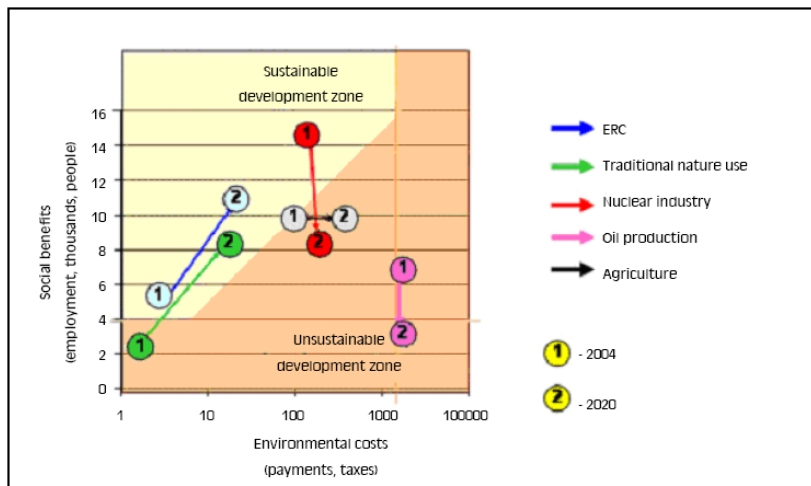
“Rather than focus on the nature-culture dichotomy, my empirical research assumes multiple levels of causation in testing the reasons for the current direction of change: namely, a growing non-market subsistence economy in the Taimyr’s native communities and few, largely unsuccessful, new businesses. Accounting for relative levels of risk and uncertainty in the subsistence and market sectors of the economy, individuals are making the best and most logical choices they can. Since 1991, as Soviet-era economies of scale devoted to intensive production of renewable resources have all but disappeared, the conditions for small business have continued to be unfavourable. The diminishment of the formal economy favours kinship cooperation in production, non-market distribution, and communal consumption to ensure local survival. I believe that the growing importance of the subsistence economy is a reaction to the conditions of the economic transition, not the result of the legacy of communism or some deficiency among the people.

Subsistence economies are developing throughout Russia in varying degrees. The growth of the belt of fruit and vegetable gardens surrounding Moscow in recent years and the popularity of mushroom and berry collecting are examples of this process. The growth of subsistence production in lieu of commercial production reduces the taxable market sector in the Russian national economy and limits resources available for government investment or price control of key industries. The growth of subsistence production follows a rational, low-risk strategy, in the context of Russia’s unpredictable market economy. “

Quote from Ziker (1998)

What should we make of this? Are NTFPs the key to sustainable rural development in the RF or not? Interestingly the UNEP sponsored integrated assessment³⁵ of the Tomsk Oblast Development Strategy (UNEP 2006) that ‘Traditional nature use’ (i.e. NTFPs) is the most sustainable option for economic development in Tomsk (see Figure 5). The alternatives, nuclear power, oil production and agriculture are all likely to not just be unsustainable but involve deforestation and would not reach remote rural communities.

Figure 5 Sustainable development scenarios for Tomsk Oblast



From: UNEP 2006. The lines show the projected environmental and social costs and benefits of development of a range of economic opportunities for Tomsk Oblast. ERC = Education and research complex.

The challenge is therefore to find ways of developing NTFP enterprises which can reach remote areas that will provide employment rather than entrepreneurial opportunities. This rather suggests that the direction being taken by the authorities is the right one and

³⁵ This is an assessment of the full social and environmental costs of economic development. This study was done as part of the Russian contribution to the Integrated Assessment and Planning project of UNEP which was funded by the Norwegian Ministry of Foreign Affairs with the support of international experts.

large-scale exploitation and enterprises is the way forward – at least for now. Care should be taken to ensure that entry points for village-based entrepreneurship are not closed off and large enterprises should be encouraged to support the products of such enterprises by bringing them to market. As employment in NTFP collection is shown to be low risk it is possible that interest in enterprise development could flicker back into life – they did exist in the past. The few nascent enterprises that do exist should also be encouraged perhaps through a business angel³⁶ scheme. The Directors of both Bogara and Rodnik have expressed a willingness to share their experience and help other businesses flourish. It is this sort of practical demonstration of success that is most effective.

5.3 Certification

There are many forms of certification which, after all, is at its simplest is assurance that a product is of required quality with the intention of protecting or reassuring the consumer that it is safe. Unfortunately meeting the standards requires test and inevitably some bureaucracy and obtaining required certificates can present a considerable barrier to new enterprises.

In the RF there are several levels of certification, that required for sales within a region, with the RF and for export. They serve many functions, some are obligatory and represent minimum requires for legal trade while others are voluntary and seek to confer some market advantage to the product or production system. Demidova & Alhojärvi (2001) point out that there are two basic certificates required for dealers in raw plants. The hygienic certificates are issued to show that the product has passed prescribed tests for heavy metal and microbial content. The Certificate of Conformity are for government quality standards for preparation, packaging, labelling and transportation of fresh, semi-processed and processed NTFPs which are species specific.

Certification of goods to trading Standards are most rigorously enforced where safety of the product is critical so there are strict definitions of standards for foodstuffs (Codex Alimentarius³⁷), medicines (see Box 14) and for particular products such as toys. Metrological standards (weights and measures) are defined in international standards (ISO 1705). In addition for international trade any unprocessed plant product requires a Phytosanitary certificate. For the Russian Federation these are issued by Rosselkhoznadzor³⁸ and depend upon an inspection and payment of a fee. Although all these standards are intended to protect health the bureaucracy and payments involved are often significant barriers. Furthermore some (especially Phytosanitary regulations) are explicitly used as trade barriers³⁹ as well as being open to abuse.

Nevertheless there are many NTFPs especially crafts do not have explicit trading standards.

³⁶ A business angel is when a more experienced entrepreneur invests and mentors a new enterprise.

³⁷ http://www.codexalimentarius.net/web/index_en.jsp

³⁸ <http://www.fsvps.ru/fsvps/main.jsp?language=en>

³⁹ America maintains lists of countries with adequate phytosanitary inspection from which it will accept imports of specific foodstuffs – to get a product onto the approved importer list will be beyond a single enterprise and generally requires lobbying at government level. See www.ers.usda.gov/AmberWaves/April08/DataFeature/

Box 14 Certification of medicinal plants

The governance of medicinal plant use from collection to dispensing lies with the Ministry of Health & Social Development though much of these responsibilities are delegated to Roszdravnadzor (Federal Service on Surveillance and Health Care). This renders FSC-style certification systems problematic as such institutions do not have the capacity to develop forest management systems to FSC standard for medicinal plants – they are mostly concerned with ensuring the quality of medicines. It is likely that at some point control of medicinal plant harvesting will be transferred to the forestry authorities but this is not a current priority for either institution.

Nevertheless, the manufacture of medicines listed in the State Pharmacopoeia (12th edition) is strictly controlled and Certificates of Analysis (C of A) are required for all sales of the 260 medicines described in the Pharmacopoeia (many of which contain wild collected herbs). These certificates are used to ensure that the traded materials meet the required standards for hygiene and level of active compounds. Formerly there were national standards but these were rather low and the regions have since developed their own standards. Obtaining a C of A requires laboratory testing using prescribed protocols. In many remote areas such as the Republic of Khakasia, the RFE and even places as large as Krasnoyarsk Krai there are no available facilities to undertake these tests. The few government laboratories have no spare capacity while larger companies such as Dalpharm in Vladivostok do not do contract testing though they will buy in raw materials without C of A and undertake testing in house. It is possible to sell herbal products (though not medicines) locally without certificates (e.g. herbal teas to visitors) but sale through shops and distribution outside a region or export is not possible without a certificate. This acts as a significant barrier to the establishment of enterprises selling herbal products as multiple C of A are required and often testing in Moscow which is slow, uncertain and expensive. The problems are exacerbated for new products as for these appropriate standards for tests have to be developed.

An evaluation of C of A by the FOREST project in Krasnoyarsk concluded that the government C of A are in many cases of little use to buyers (who may be purchasing for a different use e.g. as a food supplement rather than for formulation as a medicine) and the certificates themselves should perhaps be re-evaluated to come more into step with worldwide production practices. At present for export the C of A sometimes fails the testing needs of the buyer which means they need to be re-tested while they are not required by other buyers who can offer higher profits because transactions can be faster and less expensive.

Source: Interviews with Vladimir Alekseevich Shinok (Siberian Social Partnership) and Valery Sanochkin (Director of Rodnik), 24 January 2008, McCaleb 2001.

There are three generic categories of voluntary certification:

- Forest certification (e.g. FSC)
- Organic certification and
- Social accountability (Fair trade)

Certification in connection with forestry is often equated with assurance of compliance with internationally accepted standards for sustainable forest management. Such systems were instituted as a reward operators for good practice and were imagined to be an *opportunity*. Unfortunately, as with all bureaucracies it is now perceived or indeed used as a trade *barrier* and a requirement for forest certification can be a considerable expense and burden on smaller enterprises. Nevertheless there are moves to make schemes more accessible to smaller operators and it can be a powerful tool in the marketing of forest products. It comes in various guises the one most often associated with forests being FSC/PEFC style certification of the sustainability of forest management. There are moves to establish such systems in the RF but with a focus on timber. There have been some attempts to accommodate NTFPs within FSC certification but it has been largely unsuccessful as the approach that has been taken is to devise standards for each product. The investment required for this means that very products can be certified – notably Brazil nuts, Maple syrup and Venison from state forest land in the UK. The approach is anachronistic as most forests contain multiple products and Demidova and Alhojärbi (2001) judged that neither FSC or PEFC were right for Russian NTFPs. However, if this type of certification is introduced for timber then there is a need to include provisions for them (e.g. protection of collection rights) within the forest standards

though whether this can be extended as far as placing a label on the NTFPs themselves is moot.

Wild harvested forest products are the ultimate 'organic' product as they have been produced without any human intervention and no application of fertilisers or pesticides. However, the need to certify the land itself, the extensive nature of harvesting and harvesting by people without control over the land all mitigate against organic certification. However, it should be possible to obtain organic certification for land under a lease especially if this is for NTFPs and there are moves by SIPPO (Switzerland) to certify wild harvested products⁴⁰. Of course before this can happen organic certification needs to be established in the RF – in 2001 there was only one organic certifier, EkoNiva based in Moscow.

The social benefits of NTFP enterprises is significant and requires recognition but the Fair Trade labels popular in the UK are a specific scheme which is not likely to find favour in the RF. However, the many national fair trade organisations have come together to devise over-arching standards and these together with the movement of big international business towards social responsibility have culminated in an international standard ISO 26000⁴¹ and the SA8000⁴² certification scheme. Both of these should have relevance to the development of NTFP enterprises at any scale in the RF especially if products are intended for export.

As a final point, the main marketing point for many forest products is "bio-pure" or "eco-pure" which is meant to convey a source which is unpolluted and pristine. There is at present no government policy for the verification or use of such claims and this is perhaps an area which could be developed.

6 A way forward

In recent times favourable conditions are being created for a revival of the commercial processing of NTFPs (Demidova & Alhojärvi 2001) for a number of reasons:

- 1) There is insufficient importation of foodstuff to meet local demand
- 2) Forestry bodies are once again charged with undertaking economic activities to make up shortfalls in operational budgets
- 3) External investors are more willing to invest in the RF⁴³ (see Tian 2008 for the impact of Chinese loggers in Siberia)
- 4) Demand for NTFP products especially for local and "eco-pure" products remains high
- 5) There are no restrictions on NTFP production and science suggests sustainable harvests are 2-3 times higher than at present
- 6) Cheap labour force (10-30% unemployment in rural villages)

Most NTFPs are collected in remote forests and they need to find a market, demand for pure, traditional taiga products is growing in urban centres as people become more affluent. There are also strong export markets to both the west and east. Probably the biggest potential export market is east (China, Korea, Japan) especially for Siberia and

⁴⁰ See http://www.imo.ch/imo_services_wildcollection_activities_en,29026,998.html for a Swiss example.

⁴¹ See <http://isotc.iso.org/livelink/livelink/fetch/2000/2122/830949/3934883/3935096/home.html?nodeid=4451259&vernum=0>

⁴² See <http://www.sa-intl.org/index.cfm?fuseaction=Page.viewPage&pageId=473>

⁴³ See Tian 2008 for the impact of Chinese loggers in Siberia

the RFE and this probably represents the most significant market for Russian NTFPs. There is a significant separation in products demanded by eastern and western markets. Berries and live flowers go west while fiddlehead ferns go east. Medicinal plants and mushrooms are in demand for both markets though there may be some differentiation by species. Urgent need for more information on present trade routes and supply chains for NTFPs leaving Russia. As is often the case the rarer plants in demand for medicinal use come from mountainous areas from higher altitude forests and alpine meadows. Russia has a more or less continuous belt of mountains along its southern borders and it appears that rare and endangered species are haemorrhaging across the southern borders with particular concern for the Caucasus and Altai.

The obvious response to these market opportunities is to re-establish large scale harvesting in rural areas to supply local, urban markets. This would have many benefits, the most important being the provision of employment for rural communities but also affordable foodstuffs for urban people, the alleviation of pressure on over-harvested peri-urban forests and provide a potent reminder of the value of the taiga.

There are also risks in not having a vibrant economic activity associated with NTFPs. Most wild products are dependant on forest type and integrity – a point which was reinforced by forestry officials in Krasnoyarsk who expressed a preference for NTFP use as it causes minimal damage to the soil and forest and wished to develop a multi-product silvicultural system based on selection cutting. In the past for many low productivity forests revenues from NTFP collection were 4-5 times higher than timber revenues and this provided an economic rationale for their protection from logging. With the collapse of the NTFP industry the economic argument for protecting these forests is weakened and they are potentially at risk of re-allocation to timber exploitation. Revitalisation of the NTFP collection could play a significant role in the protection of the taiga and could well be crucial for some categories of protection forest.

The dearth of current NTFP resource information is a significant barrier to the development of NTFP lease Forest Development Plans. The only extant data on NTFP resource levels are out-dated (from the 1980's) and only included a small number of NTFP species. New resource data are essential to underpin any strategic promotion of large-scale NTFP commercialisation especially since current harvesting levels appear to be greater than the resource quantified in the 1980's – at least in Tomsk Oblast. There is a serious lack of funding and capacity to undertake a comprehensive NTFP inventory. International support for the development of statically based, cost-effective and participatory NTFP inventory methods has been welcomed in Tomsk and Khakasia and would provide a relatively easy and cost-effective means of supporting NTFP development.

Generally it appears that there is a considerable body of useful research on NTFPs in Russia but that this is poorly published and disseminated even within Russia. Language barriers work in both directions serving to isolate Russian research from that of the rest of the world. Given the focus of Soviet research was inventory, management, domestication and phytochemistry it is probable that the international developments in participatory techniques will not be represented in Russia.

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