

IX/6,30



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INŠTITUT ZA GEOGRAFIJO  
UNIVERZE V LJUBLJANI

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b, c, d  
Naslov: Kartiranje izrabe tal  
in študij agrarnih struktur  
in sistemov v Jugoslaviji.

Leto izdelave: 1964

~~XXXXXXXXXX~~  
Klemenčič, Cerkvenič

3 krat v slovenščini

1 " " srbohrvaščini

6 " " angleščini

IX | 6,30

Inštitut za geografijo  
univerze v Ljubljani

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KARTIRANJE IZRABE TAL IN ŠTUDIJ AGRARNIH STRUKTUR IN SISTEMOV  
V JUGOSLAVIJI

Ljubljana, 1964

*Vlada Republike Srbije, Beograd* 14  
*Uroš Cihrić, Zagreb*

KARTIRANJE IZRABE TAL IN ŠTUDIJ AGRARNIH STRUKTUR IN SISTEMOV V  
JUGOSLAVIJI

Povojni družbeni in ekonomski razvoj Jugoslavije karakterizira hitra industrializacija in socializacija agrarne proizvodnje. Ta razvoj se odraža v hitrem spreminjanju ekonomske strukture prebivalstva, spremembi agrarnih struktur in spreminjanju načina izkoriščanja tal v agrarnih pa tudi v neagrarnih področjih. Od leta 1953 se je število aktivnega kmečkega prebivalstva zmanjšalo za okoli 500 000 ljudi. Sekundarni in terciarni sektor gospodarske dejavnosti ne sprejema samo prirodni prirastek odraslega prebivalstva temveč tudi veliko število agrarnega prebivalstva.

UPADANJE DELEŽA AKTIVNEGA PREBIVALSTVA V KMETIJSTVU TABELA 1<sup>1)</sup>

Leto	SFRJ	Srbija		Hrvatska		Slovenija		Bosna Herceg.		Makedon.		Črna gora	
		-	+	-	+	-	+	-	+	-	+	-	+
1948	70.6	74.5	3.9	66.2	4.7	49.0	21.6	77.3	6.7	71.7	1.1	76.0	5.4
1953	60.9	67.4	6.5	57.3	3.6	43.0	17.9	63.6	2.7	65.2	4.3	58.8	2.1
1961	51.7	59.1	7.4	45.2	6.5	31.5	20.2	54.7	3.0	55.7	4.0	46.6	5.1

*stari 211* Sledimo lahko zelo hitremu razslojevanju vasi kar proži na eni strani proces izseljevanja še nedavno agrarnega prebivalstva v mesta ali pa kar je za Jugoslavijo zelo značilno, kmečko prebivalstvo, ki spremeni poklic, ostane doma na vasi in dnevno potuje na delo v bolj ali manj oddaljeno gospodarsko središče.

*occupat* 1) Poklicno preslojevanje vasi je na eni strani posledica nerentabilnosti malih kmetijskih gospodarstev, ki so v Jugoslaviji v prevladi, ter potrebe po delovni sili v hitro se razvijajočih neagrarnih gospodarskih dejavnostih, ki iz razdobja v razdobje s pospešenim tempom večajo število delovnih mest. Danes je v Jugoslaviji dvojna zaposlitev družinskih članov kmečkih gospodinjstev vsakdanji pojav in prav ta gospodarska povezanost dvojnega dohodka od nekmečke zaposlitve in zemlje hkrati odločujoče vpliva na način izrabe tal in agrarno gospodarstvo. Čim večji je dohodek in kvalifikacija družinskih članov kmečkih gospodinjstev tem manjša je odvisnost teh gospodinjstev od dohodka kmetijstva in zato s povečanjem kvalifikacije in s tem povezanim povišanjem dohodkov družinskih članov

1) Podatki tabele po:

-Konačni rezultati popisa stanovništva 1948.g., knj. III. Savezni zavod za statistiku i evidenciju, Beograd 1954; Popis stanovništva 1953, knj. V, Savezni zavod za statistiku, Beograd 1960; Statistički bilten br. 250 Stanovništvo i domaćinstva, Savezni zavod za stat. Beograd 1962

kmečkih družin v neagrarnih poklicih upada intenzivnost izkoriščanja tal. Ta procent je hitrejši v ravninskem svetu z močnimi industrijskimi centri. V območju industrijskih središč so zaradi prekvalifikacije članov kmečkih družin ter zmanjšanja interesa do intenzivnejše obdelave zemlje, dozoreli pogoji za socializacijo, nastali so veliki specializirani kmetijski obrati, ki jih imenujemo "agrokombinate".

Prav ti procesi, ki jih karakterizirajo elementi demogeografske in ekonomske narave so prispevali, da se glede na stopnjo intenzivnosti izrabe tal oblikujejo trije tipi področij:

- a) Obmestna področja na ravninskem svetu, kjer se oblikuje specializirana proizvodnja v okviru socialističnega sektorja (agrokombinati)
- b) Širša okolica industrijskih središč z manj ugodnimi prirodnimi pogoji za arondacijo in za moderno kmetijsko proizvodnjo, kjer je zemljišče v rokah članov kmetijskih družin z dvojnimi dohodki. Tu se naglo opušča polikulturalna proizvodnja ter se preusmerja na določene specializirane gospodarske panoge usmerjene k tržni proizvodnji.
- c) Pretežno agrarna področja v gorskem svetu, na krasu ter v perifernih predelih subpanonskega sveta, kjer za moderno specializirano kmetijstvo niso ugodni pogoji, ker se prebivalstvo izseljuje za trajno, intenziteta izkoriščanja tal pa nazaduje.
- d) Področja z ugodnimi prirodnimi pogoji za kmetijstvo toda oddaljena od industrijskih središč, ki se zaradi specifičnih pogojev usmerjajo v eno panogo (vinogradništvo, sadjarstvo, ind. rastline, gozdarstvo), proizvodnja pa je v rokah socialističnega sektorja bodisi v obliki agrokombinatov ali v obliki kooperacije.

Inštitut za geografijo univerze v Ljubljani je na osnovi predhodnih rezultatov raziskav agrarnega gospodarstva, ki so jih izvedli starejši geografi (Melik, Ilešič<sup>2)</sup>), pričel v zadnjih dveh letih s sistematično raziskavo nekaterih primerov pokrajin, ki spadajo med zgoraj navedene tipe področij. Posebno intenzivno se je to delo pričelo razvijati s pričetkom skupnega dela s poljskimi kolegi pod vodstvom prof. Kostrowickega. Kartiranje izrabe tal in študij agrarnih sistemov koordiniramo jugoslovanski geografi v okviru posebne komisije Saveza geografskih društev Jugoslavije. Pri tem delu sodelujejo tudi geografske katedre fakultete s slušatelji. Dosedanji rezultati našega dela terjajo uskladitev akcije vseh jugoslovanskih geografov, zato imamo na programu od 11. do 13. junija zvezni simpozij v Sloveniji, na katerem bomo pripravili obsežen program za sistematično kartiranje tipičnih področij Jugoslavije in pripravo enotne metodologije, ki jo bomo vskaždili z mednarodnimi metodami.

2) Ilešič S., L'état actuel et les problèmes des recherches sur l'utilisation du sol en Yougoslavie i Crkveňčič I. "Land Use Mapping under Yugoslav Conditions" w: Land Utilization, Methods and Problems of Research, Polish Academy of Science, Institute of Geography, Geographical Studies No. 31, Warszawa 1962.

Heterogenost prirodnih pogojev ter velike razlike v gospodarskem razvoju v posameznih predelih Jugoslavije, ki jih je podedovala socialistična Jugoslavija, odločilno vplivajo na način in sisteme izkoriščanja tal. Zaradi tega je bilo potrebno, da pri pripravah metode proučevanja, ki bi ustrezala našim družbenim in prirodnim pogojem, upoštevamo dragocene/izkušnje agrarnih geografov srednje-evropskih dežel. Pri terenskem delu, anketiranju in kartiranju smo precej dragocenih izkušenj prevzeli od poljskih kolegov, ki jih vodi prof. Kostrowicki, genetsko socialne aspekte pa smo prevzeli od Münchenske šole, ko jo vodi prof. Hartke. Dragocene pa so nam literarni prispevki Enyedi-ja iz Madžarske in prof. Rubitschka iz Vzhodne Nemčije.

Inštitut za geografijo univerze v Ljubljani se razen z demogeografskimi problemi ukvarja zelo intenzivno z agrarnogeografskimi problemi, socialnimi problemi vasi ter agrarnim izkoriščanjem tal. S sistematičnim delom smo šele pričeli. Zato še ne moremo podati zaključne podobe o načinih izkoriščanja tal, o agrarni produkciji in agrarnih sistemih za celotno Jugoslavijo, Slovenijo ali širše področje, temveč le za manjša področja. Naše poročanje omejujemo na primere raziskav agrarnega/gorskega obrobja Mežiške doline (Alpe-Karavnake)<sup>1)</sup> ter vinorodnih vzhodnih Slovenskih goric<sup>2)</sup> (subpanon.) gričevje). Za obe področji je skupno to, da prevladujejo kmetijska gospodarstva, ki so le v neznatni meri navezana na zaslužek izven kmetijstva, a že več ali manj podvržena modernizaciji in racionalizaciji kmetijske proizvodnje. Značilno je tudi to, da se prepletata privatni način kmetijskega gospodarjenja s socialističnim načinom gospodarjenja. V Slovenskih goricah se uveljavlja socialistični način gospodarjenja na vinogradnih, v alpskem svetu pa na gozdnih površinah. Za boljše ponazoritev o razliki načina izkoriščanja tal in agrarnih sistemov v okviru iste regije, ki nastaja zaradi razlik mikrogeografskih, socialno-ekonomskih faktorjev obravnavamo Mežiško dolino in dve naselji vinorodnih Slovenskih goric. V obeh predelih smo izbrali po eno vas, kjer zaradi slabših prirodnih pogojev in družbenih pogojev še prevladuje star polikulturni način proizvodnje v okviru privatne posesti, Strojno v alpskem svetu in Runeč v vinorodnih Slovenskih goricah in dve vasi s specializirano in pretežno socializirano kmetijsko proizvodnjo Koprivno v alpskem svetu in Nunsko grabo v Slovenskih goricah.

V Mežiški dolini je pomešan relief z blagami in zaobljenimi oblikami na nepropustnih kameninah paleozojske in terciarne starosti, katere so prekrite z debelejšo prstjo, z reliefom strmejših oblik in tanjšo plastjo prsti na mezozojskih apnencih, ki nudi zaradi različne stopnje razrezanosti, ekspozicije in višinskih razlik ter različnega socialno historičnega razvoja, različne pogoje za kmetijsko izrabo.

1) Jakob Medved: Socialno geografski razvoj Mežiške doline v zadnjih loo letih (dissrtacija v rokopisu)

2) Borut Belec : Agrarna geografija Ljutomerksih goric (disertacija)

**STROJNA** obsega obsežen kompleks gorskega sveta na nepropustnih kameninah, blagih reliefnih oblik s številnimi policami bolj zložnega sveta, ki nudijo, posebno na prisojnih legah ugodne pogoje za kmetijstvo. Poselitev je v obliki samotnih kmetij, razporejenih v terasah. Zaradi velike oddaljenosti od neagrarnih gospodarskih središč in relativno visoke nadmorske lege (1000 m) se moderne oblike kmetijskega gospodarstva uveljavljajo počasneje kot drugod v Sloveniji in so se zato obdržale stare oblike polikulturalnega gospodarstva. Vpliv industrializacije in modernega družbeno ekonomskega razvoja se odraža predvsem v depopulaciji, mlada delovna sila se je odselila, delež aktivnega kmečkega prebivalstva znaša le 20%. Obdelanih je le polovico njiv, ostale izkoriščajo kot ekstenziven travnik, ki ni niti pognojen niti posejan s travo. Tudi število živine jenazadovalo v zadnjih letih za 30%. Prevladuje 4 letni kolobar; prvo leto okopavine, drugo pšenica, trtje rž in četrto oves. Na kmetijskih površinah znaša delež prehrabnih rastlin 25% ŽE (žitnih enot) skupne rastlinske produkcije. Od prehrabnih rastlin prevladuje rž, lrompir in pšenica po vrednosti v približno enakem odnošaju, 80% krmnih rastlin dajejo travniki in pašniki, 20% pa jih pridelajo v obliki ječmena, ovsa, pes itd. na polju. Rastlinska produkcija je zelo nizka, saj znaša le 8.3 ŽE na ha, od tega pri prehrabnih rastlinah 13.4 ŽE in pri krmilnih rastlinah 7.2 ŽE na ha.

Živinoreja ni specializirana. Skoraj tri četrtine od skupne vrednosti izražene v GNŽ (glav normalne živine), je govedo. Pri govedu ~~xxxx~~ je po vrednosti (v GNŽ) polovica krav, ostalo pa voli in mlada živina. Četrtino GNŽ odpade na konje in svinje, perutnine je malo. Živinoreja je v okviru celotnega agrarnega gospodarstva vodilna gospodarska panoga, močno pa dopolnjuje tudi poljedelstvo zaradi gnoja, vprežne živine na polju in v transportu. Rastlinska produkcija na 1 kmečkega prebivalca znaša 16.1 ŽE in 1.078 GNŽ, na enega ~~aktivnega~~ kmečkega prebivalca pa 84.2 ŽE in 5.54 GNŽ.

**KOPRIVNA** Povsem drugačno podobo izkoriščanja tal in agrarnega gospodarstva kaže Koprivna, ki leži v južnem delu doline v močneje razrezanem reliefu na magmatskih ~~kameninah~~, paleozojskih in metamorfnih kameninah. Za to področje je značilna visoka lega, večina kmetij leži v nadmorski višini nad 1000 m. Prst je sorazmerno debela, toda zaradi velike množine padavin (1452 mm) in senčne lege je slabše kakovosti z znaki zamočvirjenosti. Zaradi slabših prirodnih pogojev ob zgornji meji naselitve je bilo v preteklosti potrebno več zemlje za preživljanje družine, zato prevlada velika posest, povprečno 85 ha, medtem ko v Strojni, kjer so boljši prirodni pogoji znaša povprečna velikost 22 ha. Dokler je bilo kmečko gospodarstvo navezano na živinorejo in poljedelstvo, med gospodarsko močjo velike kmetije v Koprivni in srednje kmetije na Strojni ni bilo bistvene razlike. Z naraščanjem cen lesa so nastale precejšnje razlike v transformaciji pokrajine v agrarni izrabi tal in agrarnih sistemih. Strojna je zaradi manjše possti in pomanjkanja gozda ostala pri polikulturalnem sistemu gospodarstva, vpliv splošnega družbeno ekonomskega

razvoja se kaže le v depopulaciji in opuščanju intenzivnejše njivske izrabe tal. Kmetijsko gospodarstvo v Koprivni se je pa naglo transformiralo v gozdarstvo, kar se odraža v povečanju gozdnih površin. Glavna gospodarska panoga je gozdarstvo in živinoreja. Le 25% njiv je obdelanih. Glavna prehrambena kultura je krompir in rž, ostale pa so skoraj popolnoma opustili. Prehrambene kulture sorazmerno dobro uspevajo, ker jim lahko zaradi številne živine vsako leto gnojijo, travniki in pašniki pa ostajajo nepognojeni. Delež prehrambenih rastlin daje 7.5% celotne rastlinske produkcije, 96% krmilnih rastlin pridelajo na travnikih in pašnikih. Pri živinoreji je najvažnejša govedoreja, kjer je rahlo poudarjena mlečna usmerjenost. Precejšen pomen ima še konjereja zaradi prevoza lesa, ostale vrste živine goje samo za domače potrebe. Rastlinska produkcija na 1 ha kmetijskih površin znaša 3.2 ŽE na ha (prehrambenih rastlin) 13.4 krmilnih rastlin 3 ŽE). Na 1 kmečkega prebivalca pride pri rastlinski produkciji 61.1 ŽE ter 4.9 GNŽ. Na 1 aktivnega kmečkega prebivalca pa 94.7 ŽE in 6.34 GNŽ.

RUNEČ V Slovenskih goricah pa odločilno vpliva na sistem kmetijskega gospodarstva in izrabo tal vinogradništvo in sadjarstvo. Naselje Runeč leži v zahodnih Ljutomersko ormoških goricah v nadmorski višini 280 do 320 m. V gričevnatem svetu z blagimi reliefnimi oblikami in manjšimi strminami, ki so prekrite z debelim slojem peščene in ilovnate zemlje. Na tem področju vinogradništvo v zadnjem času zaradi zložnejših pobočij in s tem manjšo insolacijo ob uveljavljanju bolj racionalnih oblik gospodarjenja propada, zaradi konkurence sosednjih področij z bolj ugodnim reliefom.



P R E G L E D N A T A B E L A

Zemljiške kategorije	KOPRIVNA		STROJNA		RZNEČ		NUNSKA GRABA	
	ha	%	ha	%	ha	%	ha	%
Njive, vrt.	119.-	4.-	140.0	18.2	53,6	27.8	22.-	17,7
Travniki	149.-	5.-	94.	12,7	9,5	4,9	3.-	2,4
Sadovnjak	-	-	-	-	6,6	3,4	22,-	17,7
Vinograd	-	-	-	-	28,7	15,-	52,-	42,-
Pašnik	634	21,3	70,-	9,5	22,-	11,4	9,-	7,2
Gozd	1993	67,-	427,-	57,5	68,6	35,7	11,-	9,-
Ostalo	80	2,7	11,-	1,5	3,5	1,8	5,-	4,-
Skupno	2975,-	100	742,-	100	192,5	100	124	100

% obdelanih njiv	24	<del>24</del>	53,9	100	100
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PRODUKCIJA:

Prehrambene rastline

dajejo naslednji %

celotne prod.kmet.pov. (v ŽE)

7,5	25,2	46,9	69,4
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V okviru prehrabnih rastlin dajejo: / v % ŽE)

pšenica	8,9 %	26,0 %	29,- %	39,1
rž	38,8 %	36,6 %	13,9 %	-
krompir	50,- %	26,6 %	33,- %	27,88
sadje	2,3 %	5,- %	20,5 %	27,7
ostalo		5,8 %	3,6 %	5,4

Krmilne rastline dajejo naslednji % celotne produkcije kmetijskih površin v % ŽE)

92,5	74,8	53,1	30,6
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V okviru krmilnih rastlina dajejo v % ŽE

ječmen	<del>5,5</del>	4,8	2,1	-
oves	3,5	8,5	1,3	-
detelja	0,6	3,-	24,7	-
ostale	0,1	<del>3,7</del>	13,5	19,0
travniki	74,-	74,-	18,1	20,2
pašniki	21,8	6,-	4,7	3,9
koruza	-	-	35,6	56,9

Rastlinska produkcija

v ŽE na 1 ha kmet. pov.

a/ prehrambene	13,4	13,4	30,2	23,9
b/ krmilne	3,-	7,2	22,2	21,1
c/ Skupno	3,2	8,3	26,2	23,-

~~RASTLINSKA PRODUKCIJA V ŽE NA KMETIJSKEM POREBIVALCU~~

Na 1 kmetijskem

prebivalca

a/ pri prehrabnih	4,6	4,1	5,2	3,5
b/ pri krmnih	56,5	12,-	6,0	1,5
SKUPNO	61,1	16,1	11,2	5,-

	KOPRIVNA	STROJNA	RUNEČ	NUNSKA GRABA
<i>RASTLINSKA PROD. V ŽE NA AKTIVNEGA KMEČKEGA PREBIVALCA</i>				
<del>Prod. na 1 akt.</del>				
<del>kmečkoga prebivalca</del>	94,7	84,2	25,5	14,2

### STRUKTURA ŽIVINE V GNŽ

Delež GNŽ pm v odstotkih po vrstah živine:

Konji	17,9	13,-	2,7	3,8
Govedo	67,3	69,3	66,8	72,6
Svinje	8,6	11,6	25,4	18,4
Drobnica	4,4	3,7	0,5	-
Perutnina	1,8	2,4	4,7	5,2

Pri govedoreji je delež krav izražen v GNŽ v odstotkih;

	54,5	50,8	75,-	82,-
Štev. GNŽ na 1 ha kmet.pov.	0,218	0,557	1,150	1,213
Štev. GNŽ na 1 kmet. prebivalca	4,9	1,078	0,600	0,417
Štev. GNŽ na 1 aktivnega kmet. preb.	6,34	5,64	1,12	1,18

V zadnjem času je vinogradniška površina nazadovala za polovico, njive in travniki pa so se močno razširili. Vrednost prehrabnih in krmilnih rastlin je precej izenačena (47% : 53%). Pri prehrabnih rastlinah daje največ krompir, pšenice in rži, kar kaže da je produkcija usmerjena za domače potrebe. Orientacijo k blagovni proizvodnji kaže sadje, ki zavzema 1/5 produkcije prehrabnih rastlin. V razliko od alpskih področij odpade zelo malo produkcije krmilnih rastlin na travnike in pašnike, karakterističen je velik del detelje in koruze. Dolga vegetacijska doba, zlasti topla jesen omogoča gojitev strniščnih kultur, Na splošno je uveljavljen 4 letni kolobar, prvo leto okopavine, drugo pšenica, tretje leta rž ali ječmen ter četrto leto detelja. Pri živinoreji je najvažnejša govedoreja, pri kateri se uveljavlja izrazito mlečna smer. Poleg tega je značilen velik delež svinj. Pomembna je tudi perutnina. Rastlinska produkcija na 1 ha kmetijske površine znaša 26,2 ŽE. Na enega kmečkega prebivalca znaša rastlinska produkcija 11,2 ŽE in 0,6 GNŽ. Na 1 aktivnega kmečkega prebivalca pa 25,5 ŽE in 1,12 GNŽ.

NUNSKA GRABA je vinorodno področje, ki obsega podolgovato dolino z relativno strmimi pobočji. Mikroklimatski pogoji za vinogradništvo na teh pobočjih so izredno ugodni, padavin je 990 mm, povprečna julijska temperatura znaša 20°C. Temperaturna vsota vegetacijske dobe nikoli ne pade pod 3000°C. Največja klimatska ovira so toča in pozebe ki pa nastopajo poredko. Do druge vojne je bila večina zemlje v posesti meščanov iz Avstrije (Radgona, Graz) katerim so visoko kvalitetne vinograde obdelovali viničarji. Z nacionalizacijo in odpravo viničarskih odnosov je prišlo v last družbenega sektorja 70% površin, pretežno vinogradov. Skoraj vse vinogradniške površine so preureditvi v terase, kjer je uvedena strojna obdelava. V privatni lasti so ostala zemljišča, ki za vinogradništvo niso pomembna, na njih gospodarijo privatni kmetje in delavci kombinata. Produkcija prehrabnih in krmilnih rastlin kakor tudi vloga živinoreje je podobna kot v Runeču. Privatni vinogradi so v stalnem nazadovanju, posamezni so že v fazi odmiranja, zamenjuje jih travnik in njiva. S preureditvijo vinogradov na moderni terasni sistem in z izboljšanjem izbora trt se je produkcija v vinogradih dvignila od približno 18 ŽE na ha, kakršna je še danes v zastarelih privatnih vinogradih, na 50 ŽE na ha.

Obravnavano področje se po skupnih učinkih prirodnih pogojev in po svojem pomenu za socialnogeografski razvoj pokrajine močno razlikujejo. V času avtarktičnega gospodarstva ko je bil edini vir preživljanja kmečke družine kmetijstvo, med gospodarsko močjo velike kmetije v Koprivni, srednje na Strojni in malo v Slovenskih goricah, zaradi slabših prirodnih pogojev v Alpah in boljših v Slovenskih goricah, ni bilo bistvenih razlik. Z naraščanjem cen lesa je večja ali manjša posest gozda povzročila močno diferenciacijo in naglo dvignila vrednost večjih kmetij z gozdom tudi v slabših prirodnih pogojih. Uvajanje moderne agrotehnik pa povzroča v novejšem času spremembo

vrednosti posameznih reliefnih oblik in s tem spremembo v načinu izkoriščanja tal. Ta se odraža v alpskem svetu v opuščanju njiv, ki se spreminjajo v travnike, pašnike in gozd, v vinorodnih goricah, kjer so boljši mikroklimatski pogoji pa nastajajo terase, ki omogočajo strojno obdelavo. Kjer so za vinograd slabši prirodni pogoji pa se vinogradi spreminjajo v sadovanjake, njive in travnike. Predeli, ki imajo posebno ugodne prirodne šogoje za gojitev posameznih kultur so doživeli močne spremembe v posestni strukturi in z njo povezanim načinom izkoriščanja tal. V takih predelih je privatna posest do druge svetovne vojen naglo prehajala v tuje nekmečke roke. Z nacionalizacijo teh zemljišč po drugi svetovni vojni je v Korpični nastal velik socialistični gozdni obrat, v Nunski grabi pa moderen socialistični vinogradniški kombinat. Za oba je značilno, da z intenzivnejšim izkoriščanjem tal naglo dvigata produktivnost.

Vpliv uvajanja moderne tehnike v kmetijstvu je povzročil naglo nazadovanje poljedelstva v reliefno manj ugodnih pogojih in spreminjanje kmetijskega gospodarske usmerjenosti teh predelov. Glede na različne klimatske pogoje, posestno strukturo ter na večji ali manjši vpliv industrializacije se ta področja spreminjajo po intenzivnosti in načinu izrabe tal ter v gospodarstvih v različno smer. V Koppivni, kjer prevladuje večja zemljiška posest in slabši prirodni pogoji se kmetje naglo preusmerjajo na gozdarstvo in živinorejo. Od prehrambnih kultur goje intenzivno na manjših površinah krompir in rž, vse ostale kmetijske površine so v ekstenzivnem pridobivanju krme za živino. Njivski kolobar je že ukinjen, krompir in rž goje na reliefno najugodnejših njivah in ga vsako leto dobro gnoje. Na Strojni se je ob zmanjšanem številu delovne sile obdržal star način gospodarjenja, še vedno pretežno usmerjen k samooskrbi. V alpskem področju, kjer prevladuje ekstenzivno pridobivanje krme za živino na travnikih in pašnikih je produkcija rastlinske proizvodnje izražena v ŽE in število živine v GNŽ na 1 kmečkaga prebivalca znatno višja kot v Slovenskih goricah, kjer je koncentrirana proizvodnja krme in prehrambnih kultur intenzivno na majhnih površinah.

V alpskem področju, kjer prevlada ekstenzivno pridobivanje krme za živino na travnikih in pašnikih je rastlinska produkcija in število živine na 1 ha površina nizka, na 1 kmečkaga prebivalca pa zaradi redke naseljenosti zelo visoka, obratno pa je v vinorodnih goricah.

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KARTIRANJE IZRABE TAL IN ŠTUDIJ AGRARNIH STRUKTUR IN SISTEMOV  
V JUGOSLAVIJI

Ljubljana, 1964

Sipn. E VIII / 1, 16  
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KARTIRANJE IZRABE TAL IN ŠTUDIJ AGRARNIH STRUKTUR IN SISTEMOV V  
JUGOSLAVIJI

Povojni družbeni in ekonomski razvoj Jugoslavije karakterizira hitra industrializacija in socializacija agrarne proizvodnje. Ta razvoj se odraža v hitrem spreminjanju ekonomske strukture prebivalstva, spremembi agrarnih struktur in spreminjanju načina izkoriščanja tal v agrarnih pa tudi v neagrarnih področjih. Od leta 1953 se je število aktivnega kmečkega prebivalstva zmanjšalo za okoli 500 000 ljudi. Sekundarni in terciarni sektor gospodarske dejavnosti ne sprejema samo naradni prirastek odraslega prebivalstva temveč tudi veliko število agrarnega prebivalstva.

UPADANJE DELEŽA AKTIVNEGA PREBIVALSTVA V KMETIJSTVU TABELA 1<sup>1)</sup>

Leto	SFRJ	Srbija		Hrvatska		Slovenija		Bosna Herceg.		Makedon.		Črna gora	
		-	+	-	+	-	+	-	+	-	+	-	+
1948	70.6	74.5	3.9	66.2	4.7	49.0	21.6	77.3	6.7	71.7	1.1	76.0	5.4
1953	60.9	67.4	6.5	57.3	3.6	43.0	17.9	63.6	2.7	65.2	4.3	58.8	2.1
1961	51.7	59.1	7.4	<u>45.2</u>	<u>6.5</u>	31.5	20.2	54.7	3.0	55.7	4.0	46.6	5.1

Sledimo lahko zelo hitremu razvoju vasi kar proži na eni strani proces izseljevanja še nedavno agrarnega prebivalstva v mesta ali pa kar je za Jugoslavijo zelo značilno, kmečko prebivalstvo, ki spremeni poklic, ostane doma na vasi in dnevno potuje na delo v bolj ali manj oddaljeno gospodarsko središče.

Poklicno preseljevanje vasi je na eni strani posledica nerentabilnosti malih kmetijskih gospodarstev, ki so v Jugoslaviji v prevladi ter potrebe po delovni sili v hitro se razvijajočih neagrarnih gospodarskih dejavnostih, ki iz razdobja v razdobje s pospešenim tempom večajo število delovnih mest. Danes je v Jugoslaviji dvojna zaposlitev družinskih članov kmečkih gospodinjstev vsakdanji pojav in prav ta gospodarska povezanost dvojnega dohodka od nekmečke zaposlitve in zemlje hkrati odločujoče vpliva na način izrabe tal in agrarno gospodarstvo. Čim večji je dohodek in kvalifikacija družinskih članov kmečkih gospodinjstev tem manjša je odvisnost teh gospodinjstev od dohodka kmetijstva in zato s povečanjem kvalifikacije in s tem povezanim povišanjem dohodkov družinskih članov

1) Podatki tabele po:

-Konačni rezultati popisa stanovništva 1948.g., knj. III. Savezni zavod za statistiku i evidenciju, Beograd 1954; Popis stanovništva 1953, knj. V, Savezni zavod za statistiku, Beograd 1960; Statistički bilten br. 250 Stanovništvo i domaćinstva, Savezni zavod za stat. Beograd 1962

kmečkih družin v neagrarnih poklicih upada intenzivnost izkoriščanja tal. Ta procent je hitrejši v ravninskem svetu z močnimi industrijskimi centri. V območju industrijskih središč so zaradi prekvalifikacije članov kmečkih družin ter zmanjšanja interesa do intenzivnejše obdelave zemlje, dozoreli pogoji za socializacijo, nastali so veliki specializirani kmetijski obrati, ki jih imenujemo "agrokominate".

Prav ti procesi, ki jih karakterizirajo elementi demogeografske in ekonomske narave so prispevali, da se glede na stopnjo intenzivnosti izrabe tal oblikujejo trije tipi področij:

- a) Obmestna področja ravninskem svetu kjer se oblikuje specializirana proizvodnja v okviru socialističnega sektorja (agrokominate)
- b) Širša okolica industrijskih središč s manj ugodnimi prirodnimi pogoji za arondacijo in za moderno kmetij ko proizvodnjo, kjer je zemljišče v rokah članov kmetijskih družin z dvojnimi dohodki. Tu se naglo opušča polikulturalna proizvodnja ter se preusmerja na določene specializirane gospodarske panoge usmerjene k tržni proizvodnji.
- c) Pretežno agrarna področja v gorskem svetu, na krasu ter v perifernih predelih subpanonskega sveta, kjer za moderno specializirano kmetijstvo niso ugodni pogoji ker se prebivalstvo izseljuje za trajno, intenziteta izkoriščanja tal pa nazaduje.
- d) Področja z ugodnimi prirodnimi pogoji za kmetijstvo toda oddaljena od industrijskih središč, ki se zaradi specifičnih pogojev usmerjajo v eno panogo (vinogradništvo, sadjarstvo, ind. rastline, gozdarstvo) proizvodnja pa je v rokah socialističnega sektorja bodisi v obliki agrokominatev ali v obliki kooperacije.

Inštitut za geografijo univerze v Ljubljani je na osnovi predhodnih rezultatov raziskav agrarnega gospodarstva, ki so jih izvedli starejši geografi (Melik, Ilešič<sup>2)</sup>), pričel v zadnjih dveh letih s sistematično raziskavo nekaterih primerov pokrajin, ki spadajo med zgoraj navedene tipe področij. Posebno intenzivno se je to delo pričelo razvijati s pričetkom skupnega dela s poljskimi kolegi pod vodstvom prof. Kostrowickega. Kartiranje izrabe tal in študij agrarnih sistemov koordiniramo jugoslovanski geografi v okviru posebne komisije Saveza geografskih društev Jugoslavije. Pri tem delu sodelujejo tudi geografske katedre fakultete s slušatelji. Doseđani rezultati našega dela terjajo uskladitev akcije vseh jugoslovanskih geografov, zato imamo na programu od 11. do 13. junija zvezni simpozij v Sloveniji, na katerem bomo pripravili obsežen program za sistematično kartiranje tipičnih področij Jugoslavije in pripravo enotne metodologije, ki jo bomo vskládili z mednarodnimi metodami.

2) Ilešič S., L'etat actuel et les problems des recherches sur l'utilisation du sol en Yougoslavie i Crkveňič I. "Land Use Mapping under Yugoslav Conditions" w: Land Utilization, Methods and Problems of Research, Polish Academy of Science, Institute of Geography, Geographical Studies No. 31, Warszawa 1962.



Heterogenost prirodnih pogojev ter velike razlike v gospodarskem razvoju v posameznih predelih Jugoslavije, ki jih je podedovala socialistična Jugoslavija, odločilno vplivajo na način in sisteme izkoriščanja tal. Zaradi tega je bilo potrebno, da pri pripravah metode proučevanja, ki bi ustrezala našim družbenim in prirodnim pogojem, upoštevamo dragocene/izkušnje agrarnih geografov srednjeevropskih dežel. Pri terenskem delu, anketiranju in kartiranju smo precej dragocenih izkušenj prevzeli od poljskih kolegov, ki jih vodi prof. Kostrowicki, genetsko socialne aspekte pa smo prevzeli od Münchenske šole, ko jo vodi prof. Hartke. Dragocene pa so nam literarni prispevki Enyedi-ja iz Madžarske in prof. Rubitschka iz Vzhodne Nemčije.

Inštitut za geografijo univerze v Ljubljani se razen z demogeografskimi problemi ukvarja zelo intenzivno z agrarnogeografskimi problemi, socialnimi problemi vasi ter agrarnim izkoriščanjem tal. S sistematičnim delom smo šele pričeli. Zato še ne moremo podati zaključne podobe o načinih izkoriščanja tal, o agrarni produkciji in agrarnih sistemih za celotno Jugoslavijo, Slovenijo ali širše področje, temveč le za manjša področja. Naše poročanje omejujemo na primere raziskav agrarnega/gospskega obrobja Mežiške doline (Alpe Karavnake)<sup>1)</sup> ter vinorodnih vzhodnih Slovenskih goric<sup>2)</sup> (subpanon. gričevje). Za obe področji je skupno to, da prevladujejo kmetijska gospodarstva, ki so le v neznatni meri navezana na zaslužek izven kmetijstva, a že več ali manj podvržena modernizaciji in racionalizaciji kmetijske proizvodnje. Značilno je tudi to, da se prepletata privatni način kmetijskega gospodarjenja s socialističnim načinom gospodarjenja. V Slovenskih goricah se uveljavlja socialistični način gospodarjenja na vinogradnih, v alpskem svetu pa na gozdnih površinah. Za boljše ponazoritev o razliki načina izkoriščanja tal in agrarnih sistemov v okviru iste regije, ki nastaja zaradi razlik mikrogeografskih, socialno-ekonomskih faktorjev obravnavamo Mežiško dolino in dve naselji vinorodnih Slovenskih goric. V obeh predelih smo izbrali po eno vas, kjer zaradi slabših prirodnih pogojev in družbenih pogojev še prevladuje star polikulturalni način proizvodnje v okviru privatne posesti, Strojno v alpskem svetu in Runšč v vinorodnih Slovenskih goricah in dve vasi s specializirano in pretežno socializirano kmetijsko proizvodnjo Koprivno v alpskem svetu in Nunsko grabo v Slovenskih goricah.

V Mažiški dolini je pomešan relief z blagimi in zaobljenimi oblikami na nepropustnih kameninah paleozojske in terciarne starosti, katere so prekrpite z debelejšo prstjo, z reliefom strmejših oblik in tanjšo plastjo prsti na mezozojskih apnencih, ki nudi zaradi različne stopnje razrezanosti, ekspozicije in višinskih razlik ter različnega socialno historičnega razvoja, različne pogoje za kmetijsko izrabo.

1) Jakob Medved: Socialno geografski razvoj Mežiške doline v zadnjih 100 letih (disertacija v rokopisu)

2) Borut Belec: Agrarna geografija Ljutomerških goric (disertacija)

**STROJNA** obsega obsežen kompleks gorskega sveta na nepropustnih kameninah, blagih reliefnih oblik s številnimi policami bolj zložnega sveta, ki nudijo, posebno na prisojnih legah ugodne pogoje za kmetijstvo. Poselitev je v obliki samotnih kmetij, razporejenih v terasah. Zaradi velike oddaljenosti od neagrarnih gospodarskih središč in relativno visoke nadmorske lege (1000 m) se moderne oblike kmetijskega gospodarstva uveljavljajo počasneje kot drugod v Sloveniji in so se zato obdržale stare oblike polikulturenega gospodarstva. Vpliv industrializacije in modernega družbeno ekonomskega razvoja se odraža predvsem v depopulaciji, mlada delovna sila se je odselila, delež aktivnega kmečkega prebivalstva znaša le 20%. Obdelanih je le polovico njiv, ostale izkoriščajo kot ekstenziven travnik, ki ni niti pognojen niti posejan s travo. Tudi število živine jenazadovalo v zadnjih letih za 30%. Prevladuje 4 letni kolobar; prvo leto okopavine, drugo pšenica, trtje rž in četrto oves. Na kmetijskih površinah znaša delež prehrabnih rastlin 25% ŽE (žitnih enot) skupne rastlinske produkcije. Od prehrabnih rastlin prevladuje rž, lrompir in pšenica po vrednosti v približno enakem odnošaju, 80% krmnih rastlin dajejo travniki in pašniki, 20% pa jih pridelajo v obliki ječmena, ovsa, pes itd. na polju. Rastlinska produkcija je zelo nizka, saj znaša le 8.3 ŽE na ha, od tega pri prehrabnih rastlinah 13.4 ŽE in pri krmnih rastlinah 7.2 ŽE na ha.

Živinoreja ni specializirana. Skoraj tri četrtine od skupne vrednosti izražene v GNŽ (glav normalne živine), je govedo. Pri govedu kmax je po vrednosti (v GNŽ) polovica krav, ostalo pa voli in mlada živina. Četrtno GNŽ odpade na konje in svinje, perutnine je malo. Živinoreja je v okviru celotnega agrarnega gospodarstva vodilna gospodarska panoga, močno pa dopolnjuje tudi poljedelstvo zaradi gnoja, vprežne živine na polju in v transportu. Rastlinska produkcija na 1 kmečkega prebivalca znaša 16.1 ŽE in 1.078 GNŽ, na enega aktivnega kmečkega prebivalca pa 84.2 ŽE in 5.54 GNŽ.

**KOPRIVNA** Povsem drugačno podobo izkoriščanja tal in agrarnega gospodarstva kaže Koprivna, ki leži v južnem delu doline v močnejše razrezanem reliefu na magmatskih kamninah, paleozojskih in metamorfnih kameninah. Za to področje je značilna visoka lega, večina kmetij leži v nadmorski višini nad 1000 m. Prst je sorazmerno debela, toda zaradi velike množine padavin (1452 mm) in senčne lege je slabše kakovosti z znaki zamočvirjenosti. Zaradi slabših prirodnih pogojev ob zgornji meji naselitve je bilo v preteklosti potrebno več zemlje za preživljanje družine, zato prevlada velika posest, povprečno 85 ha, medtem ko v Strojni, kjer so boljši prirodni pogoji znaša povprečna velikost 22 ha. Dokler je bilo kmečko gospodarstvo navezano na živinorejo in poljedelstvo, med gospodarsko močjo velike kmetije v Koprivni in srednje kmetije na Strojni ni bilo bistvene razlike. Z naraščanjem cen lesa so nastale precejšnje razlike v transformaciji pokrajine v agrarni izrabi tal in agrarnih sistemih. Strojna je zaradi manjše posesti in pomanjkanja gozda ostala pri polikulturenem sistemu gospodarstva, vpliv slošnega družbeno ekonomskega

razvoja se kaže le v depopulaciji in opuščanju intenzivnejše njivske izrabe tal. Kmetijsko gospodarstvo v Koprivni se je pa naglo transformiralo v gozdarstvo, kar se odraža v povečanju gozdnih površin. Glavna gospodarska panoga je gozdarstvo in živinoreja. Le 25% njiv je obdelanih. Glavna prehrambena kultura je krompir in rž, ostale pa so skoraj popolnoma opustili. Prehrambene kulture sorazmerno dobro uspevajo, ker jim lahko zaradi številne živine vsako leto gnojijo, travniki in pašniki pa ostajajo nepognojeni. Delež prehrambenih rastlin daje 7.5% celotne rastlinske produkcije, 96% krmil ih rastlin pridelajo na travnikih in pašnikih. Pri živinoreji je najvažnejša govedoreja, kjer je rahlo poudarjena mlečan usmerjenost. Precejšen pomen ima še konjereja zaradi prevoza lesa, ostale vrste živine goje samo za domače potrebe. Rastlinska produkcija na 1 ha kmetijskih površin znaša 3.2 ŽE na ha (prehrambenih rastlin) 13.4 krmilnih rastlin 3 ŽE). Na 1 kmečkega prebivalca pride pri rastlinski produkciji 61.1 ŽE ter 4.9 GNŽ. Na 1 aktivnega kmečkega prebivalca pa 94.7 ŽE in 6.34 GNŽ.

RUNEČ V Slovenskih goricah pa odločilno vpliva na sistem kmetijskega gospodarstva in izrabo tal vinogradništvo in sadjarstvo. Naselje Runeč leži v zahodnih Ljutomersko ormoških goricah v nadmorski višini 280 do 320 m. V gričevnatem svetu z blagimi reliefnimi oblikami in manjšimi strminami, ki so prekrte z debelim slojem peščene in ilovnate zemlje. Na tem področju vinogradništvo v zadnjem času zaradi zložnejših pobočij in s tem manjše insolacije ob uveljavljanju bolj racionalnih oblik gospodarjenja propada, zaradi konkurence sosednjih področij z bolj ugodnim reliefom.

V zadnjem času je vinogradniška površina nazadovala za polovico, njive in travniki pa so se močno razširili. Vrednost prehrabnih in krmilnih rastlin je precej izenačena (47% f 53%) Pri prehrabnih rastlinah daje največ krompir, pšenice in rži, kar kaže da je produkcija usmerjena za domače potrebe. Orientacijo k blagovni proizvodnji kaže sadje, ki zavzema 1/5 produkcije prehrabnih rastlin. V razliko od alpskih področij odpade zelo malo produkcije krmilnih rastlin na travnike in pašnike, karakterističen je velik del detelje in koruze. Dolga vegetacijska doba, zlasti topla jesen omogoča gojitev strniščnih kultur. Na splošno je uveljavljen 4 letni kolobar, prvo leto okopavine, drugo pšenica, tretje leta rž ali ječmen ter četrto leto detelja. Pri živinoreji je najvažnejša govedoreja, pri kateri se uveljavlja izrazito mlečna smer. Poleg tega je značilen velik delež svinj. Pomembna je tudi perutnina. Rastlinska produkcija na 1 ha kmetijske površine znaša 26,2 ŽE. Na enega kmeškega prebivalca znaša rastlinska produkcija 11,2 ŽE in 0,6 GNŽ. Na 1 aktivnega kmeškega prebivalca pa 25,5 ŽE in 1,12 GNŽ.

NUNSKA GRABA je vinorodno področje, ki obsega podolgovato dolino z relativno strmimi pobočji. Mikroklimatski pogoji za vinogradništvo na teh pobočjih so izredno ugodni, padavin je 990 mm, povprečna julijska temperatura znaša 20°C. Temperaturna vsota vegetacijske dobe nikoli ne pade pod 3000°C. Največja klimatska ovira so toča in pozebe ki pa nastopajo poredko. Do druge vojne je bila večina zemlje v posesti meščanov iz Avstrije (Radgona, Graz) katerim so visoko kvalitetne vinograde obdelovali viničarji. Z nacionalizacijo in odpravo viničarskih odnosov je prišlo v last družbenega sektorja 70% površin, pretežno vinogradov. Skoraj vse vinogradniške površine so preureditvi v terase, kjer je uvedena strojna obdelava. V privatni lasti so ostala zemljišča, ki za vinogradništvo niso pomembna, na njih gospodarijo privatni kmetje in delavci kombinata. Produkcija prehrabnih in krmilnih rastlin kakor tudi vloga živinoreje je podobna kot v Runeču. Privatni vinogradi so v stalnem nazadovanju, posamezni so že v fazi odmiranja, zamenjuje jih travnik in njiva. S preureditvijo vinogradov na moderni terasni sistem in z izboljšanjem izbora trt se je produkcija v vinogradih dvignila od približno 18 ŽE na ha, kakršna je še danes v zastarelih privatnih vinogradih, na 50 ŽE na ha.

Obravnavano področje se po skupnih učinkih prirodnih pogojev in po svojem pomenu za socialnogeografski razvoj pokrajine močno razlikujejo. V času avtarktičnega gospodarstva ko je bil edini vir preživljanja kmeške družine kmetijstvo, med gospodarsko močjo velike kmetije v Koprivni, srednje na Strojni in malo v Slovenskih goricah, zaradi slabših prirodnih pogojev v Alpah in boljših v Slovenskih goricah, ni bilo bistvenih razlik. Z naraščanjem cen lesa je večja ali manjša posest gozda povzročila močno diferenciacijo in naglo dvignila vrednost večjih kmetij z gozdom tudi v slabših prirodnih pogojih. Uvajanje moderne agrotehnike pa povzroča v novejšem času spremembo

vrednosti posameznih reliefnih oblik in s tem spremembo v načinu izkoriščanja tal. Ta se odraža v alpskem svetu v opuščanju njiv, ki se spreminjajo v travnike, pašnike in gozd, v vinorodnih goricah, kjer so boljši mikroklimatski pogoji pa nastajajo terase, ki omogočajo strojno obdelavo. Kjer so za vinograd slabši prirodni pogoji pa se vinogradi spreminjajo v sadovnjake, njive in travnike.

Predeli, ki imajo posebno ugodne prirodne pogoje za gojitev posameznih kultur so doživeli močne spremembe v posestni strukturi in z njo povezanim načinom izkoriščanja tal. V takih predelih je privatna posest do druge svetovne vojen naglo prehajala v tuje nekmečke roke. Z nacionalizacijo teh zemljišč po drugi svetovni vojni je v Koprivni nastal velik socialistični gozdni obrat, v Nunski grabi pa moderen socialistični vinogradniški kombinat. Za oba je značilno, da z intenzivnejšim izkoriščanjem tal naglo dvigata produktivnost.

Vpliv uvajanja moderne tehnike v kmetijstvu je povzročil naglo nazadovanje poljedelstva v reliefno manj ugodnih pogojih in spreminjanje kmetijskega gospodarstva usmerjenosti teh predelov. Glede na različne klimatske pogoje, posestno strukturo ter na večji ali manjši vpliv industrializacije se ta področja spreminjajo po intenzivnosti in načinu izrabe tal ter v gospodarstvih v različno smer. V Koprivni, kjer prevladuje večja zemljiška posest in slabši prirodni pogoji se kmetje naglo preusmerjajo na gozdarstvo in živinorejo. Od prehrambnih kultur goje intenzivno na manjših površinah krompir in rž, vse ostale kmetijske površine so v ekstenzivnem pridobivanju krme za živino. Njivski kolobar je že ukinjen, krompir in rž goje na reliefno najugodnejših njivah in ga vsako leto dobro gnoje. Na Strojni se je ob zmanjšanem številu delovne sile obdržal star način gospodarjenja, še vedno pretežno usmerjen k samooskrbi. V alpskem področju, kjer prevladuje ekstenzivno pridobivanje krme za živino na travnikih in pašnikih je produkcija rastlinske proizvodnje izražena v žE in število živine v GNŽ na 1 kmečkega prebivalca znatno višja kot v Slovenskih goricah, kjer je koncentrirana proizvodnja krme in prehrambnih kultur intenzivno na majhnih površinah.

V alpskem področju, kjer prevlada ekstenzivno pridobivanje krme za živino na travnikih in pašnikih je rastlinska produkcija in število živine na 1 ha površina nizka, na 1 kmečkega prebivalca pa zaradi redke naseljenosti zelo visoka, obratno pa je v vinorodnih goricah.

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KARTIROVANIE ISPOLJZOVANIJA POČVIJ I IZUČENIE AGRARNIH STRUKTUR  
I SISTEM B JUGOSLAVII

Ljubljana, 1964

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## КАРТИРОВАНИЕ ИСПОЛЬЗОВАНИЯ ПОЧВЫ И ИЗУЧЕНИЕ АГРАРНЫХ СТРУКТУР И СИСТЕМ В ЮГОСЛАВИИ

Послевоенное общественное и экономическое развитие Югославии характеризуют быстрая индустриализация и социализация сельскохозяйственного производства. Это развитие отражается в быстрых переменах экономического состава населения, в перемене аграрных структур и в перемене использования почвы как в аграрных, так и в неаграрных районах. С 1953 г. число активного сельскохозяйственного населения уменьшилось за 500 тысяч человек. Несельскохозяйственные отрасли народного хозяйства поглощают не только естественный прирост взрослого населения, но и большое количество крестьянского населения.

### СНИЖЕНИЕ ПРОЦЕНТА АКТИВНОГО НАСЕЛЕНИЯ В СЕЛЬСКОМ ХОЗЯЙСТВЕ

ТАБЛИЦА 1. (1)

Год	СФРЮ	Сербия	Хорватия	Словения	Босния Герцег.
1948	70.6	74.5	66.2	49.0	77.3
1953	60.9	67.4	57.3	43.0	63.6
1961	51.7	59.1	45.2	31.5	54.7

Год	Македон СФРЮ	Черногор.
1948	71.7	76.0
1953	65.2	58.2
1961	55.7	46.6

Мы наблюдаем значительное расслоение деревни вследствие переселения крестьянского населения в города, а также вследствие именно для Югославии характерного явления. А именно: крестьянское население, перебившее профессию, остается дома, в деревне и ежедневно ездит на работу в более или менее отдаленные промышленные центры.

Профессиональная переориентация деревенского населения является, с одной стороны, последствием нерентабельности мелких крестьян-

1) Podatki tabele po:

-Konačni rezultati popisa stanovništva 1948.g., knj. III. Savezni zavod za statistiku i evidenciju, Beograd 1954; Popis stanovništva 1953, knj. V, Savezni zavod za statistiku, Beograd 1960; Statistički bilten br. 250 Stanovništvo i domaćinstva, Savezni zavod za stat. Beograd 1962

нских хозяйств, которые в Югославии преобладают, а с другой стороны, последствием быстрого роста неаграрных отраслей народного хозяйства, которое все более и более нуждаются в большом количестве рабочей силы. В настоящее время, в Югославии огромное число членов крестьянских семей работает также в неаграрных отраслях и именно факт, что доход населения зависит одновременно и от земли и от работы вне сельского хозяйства сильно влияет и на способ использования почвы и на сельское хозяйство вообще. Чем выше доход и квалификация членов крестьянской семьи, тем меньше эти семьи зависят от дохода от собственного крестьянского хозяйства и таким образом параллельно с повышением квалификаций и связанным с последней доходом членов крестьянской семьи, реализованным в неаграрных профессиях, уменьшается и интенсивность использования почвы. Этот процесс проходит быстрее в ровной местности, обладающей крупными промышленными центрами. Поэтому вблизи таких центров вследствие переквалификации членов крестьянских семей и уменьшения интереса к более интенсивной обработке земли созрели условия для <sup>социал-</sup> ~~жел-~~ лективизации и возникли крупные специализированные сельско-хозяйственные предприятия, называемые "агрокомбинаты".

Именно эти процессы, характеризуемые элементами как демографического так и экономического характера способствовали формированию - с точки зрения интенсивности обработки земли - <sup>четырёх</sup> ~~трех~~ районов:

- а) ровная пригородная местность, где возникает специализированное производство в рамках социалистического сектора (агрокомбинаты).
- б) окрестности промышленных центров в более широком смысле этого слова с менее благоприятными для арондации ( коллективизации ) и для современного сельского хозяйства условиями и где земля находится в руках членов крестьянских семей, имеющих доходы из двух источников. В таких местностях поликультурное производство быстро уменьшается и хозяйства переходят к специальным сельскохозяйственным отраслям, предназначенным для рынка.
- с) Главным образом сельскохозяйственные районы в горных местностях, на карсте и на границах панонской низменности, где условия для современного специализированного сельского хозяйства мало благоприятны и откуда, сельское население окончательно переселяется в города, интенсивность же использования земли падает.
- д) Районы, обладающие благоприятными для сельского хозяйства условиями, но расположенные далеко от промышленных центров и специализирующиеся - вследствие природных условий в той или иной отрасли ( виноделие, садоводство, лесоводство, разведение растений для промышленного сырья. ) Производство в таких районах находится же в руках социалистического сектора либо в форме агрокомбинатов или же в форме кооперации.

Институт географии университета в Любляне на основании предыдущих результатов исследований сельского хозяйства, проведенных старши-



ми географами ( Мелик, Илешич )<sup>(2)</sup>, начал в последних два года систематически исследовать несколько примеров местностей, являющихся частью вышеупомянутых районов. Особенно интенсивно эта работа стала развиваться после того, как началось сотрудничество с польскими коллегами под руководством проф. Костровицкого. Югославские географы согласуют картирование использования почвы и изучение аграрных систем в рамках особой комиссии Союза географических обществ Югославии. В этой работе участвуют также кафедры географии со своими студентами. Полученные результаты ясно показывают, что теперь необходимо согласовать деятельность всех югославских географов, поэтому мы намерены в днях с 11-го по 13-ое июня организовать в Словении союзный симпозиум, для которого мы готовим обширную программу систематического картирования типичных местностей в Югославии и подготовки единой методологии, которую мы согласуем с международными методами.

Многообразие явлений природы и значительные различия в экономическом развитии отдельных местностей Югославии, которые наша страна унаследовала от прежних времен, сильно влияет на способ и систему обработки земли. Поэтому мы были должны при подготовке метода исследования, который бы отвечал нашим общественным и природным условиям, считаться с драгоценным опытом аграрных географов средне-европейских стран. В связи с работой на местах, анкетированием и картированием мы до некоторой степени воспользовались драгоценным опытом польских коллег, работающих под руководством проф. Костровицкого, тогда как примером для генетически - социальных аспектов нам служила мюнхенская школа проф. Хартке. Очень важны для нас также научные труды <sup>доцента Э. Мана</sup> Мана из Венгрии и проф. Рубичка из ГДР.

Институт географии Университета в Любляне очень интенсивно занимается кроме демографических вопросов также агрогеографическими вопросами, социальными вопросами деревни и аграрным использованием почвы.

Систематическую работу мы начали лишь недавно. Поэтому у нас еще нет полной картины способов использования почвы, земледельческого производства и аграрных систем по всей Югославии, всей Словении или вообще в более обширной местности. Такие данные у нас имеются только для сравнительно небольших районов. Поэтому мы будем говорить о исследованиях аграрногорного района на склонах у долины Межи ( Альпы Караванки )<sup>(3)</sup> и винодельческих восточных Словенских гор <sup>(4)</sup> (субпанонские холмы). Для обоих районов характерным является то, что в них преобладают крестьянские хозяйства, члены которых лишь в меньшей мере находят себе заработок вне сельского хозяйства, хотя они и стараются так или иначе модернизировать

2) Ilešič S., L'état actuel et les problèmes des recherches sur l'utilisation du sol en Yougoslavie i Crkveničič I. "Land Use Mapping under Yugoslav Conditions": Land Utilization, Methods and Problems of Research, Polish Academy of Science, Institute of Geography, Geographical Studies No. 31, Warszawa 1962

3) Jakob Medved: Socialno geografski razvoj Mežiške doline v zadnjih 100 letih (dissertacija v rokopisu)

4) Borut Belec: Agrarna geografija Ljutomerskih goric (disertacija)

и рационализировать свое хозяйство. Кроме того, здесь единоличное крестьянское хозяйство связывается с социалистическим способом хозяйничания. В Словенских горицах методы социалистической экономики применяются в виноделии, а в Межишкой долине в лесном хозяйстве. Для того, чтобы яснее показать разницу в способах использования почвы и аграрных систем в рамках той же местности, разницу, которая возникает вследствие несхожих микрогеографических и социально-экономических факторов мы исследовали Мажишкую долину и два поселка в Словенских горицах, занимающихся виноградарством. В обеих местностях мы выбрали по одной деревне, в которой вследствие неблагоприятных природных и общественных условий еще преобладает старый поликультурный способ производства крестьян-единоличников, а именно деревню Стройно в альпийской местности и Рунеч в Словенских горицах, и две деревни с главным образом специализированным и социализированным способом сельскохозяйственного производства: деревню Коприва в альпийской местности и Нунску грапу в Словенских горицах.

В Межишкой долине рельеф с мягкими и закругленными формами на непроницаемых каменных породах палеозойского и терциарного возраста, покрытых более толстым слоем рыхлой земли, с рельефом более обрывистыми формами и с более тонким слоем рыхлой земли на мезозойских известняках, который вследствие разных ступеней расчлененности, экспозиции и разных высот, создает разные условия для сельского хозяйства.

СТРОЙНА занимает обширный комплекс гористой местности, лежащей на непроницаемых каменных породах. Формы рельефа смягчены, имеются многочисленные пологие уступы, которые, особенно на солнечных склонах, очень благоприятны для сельского хозяйства. Населена она одиночными крестьянскими усадьбами, лежащими на терассах. Вследствие отдаленности от неаграрных промышленных центров и сравнительно высокого положения над уровнем моря ( 1000 м ), современные формы сельского хозяйства проникают сюда медленнее, чем в другие части Словении. Поэтому здесь сохранились старые формы поликультурного хозяйства. Влияние индустриализации и современного общественно - экономического развития сказывается здесь прежде всего в уменьшении численности населения. Молодежь переселяется и число активного крестьянского населения составляет всего 20%. Обработана всего половина полей, остальное же служит в качестве экстенсивных лугов, которые не удобряются и не засеиваются травой. Также количество домашних животных в последние годы уменьшилось на 30%. Преобладает 4- годичный севооборот: первый год картофель, второй - пшеница, третий - рожь, и четвертый - овес. На всей обработанной поверхности удел для питания предназначенных растений составляет 25% зерновых единиц всей продукции. Из культурных растений для питания преобладают в одинаковой мере картофель и пшеница, 80% кормовых растений дают луга и пастбища, а 20% сеют на полях ( овес, ячмень, свекла и т.д. ). Урожайность низка - всего 8,3 зерновых единиц на гектар, из чего на растения для людской пищи приходится 13,4 зерновых единиц, а кормовых растений 7,2 зерновых единиц на гектар.

Скотоводство не специализировано. Почти три четверти всех нормальных домашних животных составляет рогатый скот. Среди последних половина коров, а остальное волы и молодняк. Четверть домашних животных составляют лошади и свиньи, домашней птицы мало. Животноводство является главной хозяйственной отраслью в рамках всего сельского хозяйства. Кроме того, оно важно изза удобрений, рабочего скота и транспорта. Производство культурных растений <sup>на одного человека сельского населения</sup> равняется 16,1 зерновых единиц и 1,078 голов нормальных животных, а на одного человека активного сельскохозяйственного населения 84,2 зерновых единиц и 5,54 голов животных.

КОПРИВНА Совсем другую картину использования почвы и сельского хозяйства мы наблюдаем в деревне Копривна, лежащей в южной части долины в более расчлененном рельефе на магматических, палеозойских и метаморфических каменных породах. Для этой местности характерна высота — большинство усадеб находится на высоте 1000 м. над уровнем моря. Слой рыхлой земли довольно толст, однако, вследствие большого количества осадков (1452 мм) и тенистости земля здесь невысокого качества и довольно болотистая. Изза неблагоприятных условий у верхней границы населенности на содержание крестьянской семьи требовалось большее количество земли, поэтому здесь преобладает более крупное землевладение — в среднем 85 гектаров, тогда как в Стройне, где природные условия лучше, приходится в среднем 22 гектаров на одно хозяйство. Пока крестьянское хозяйство основывалось главным образом на животноводство и земледелие, между экономическим потенциалом крупного крестьянского хозяйства в Копривне и среднего в Стройне не было существенной разницы. В связи с ростом цен дереву же возникла большая разница относительно трансформации местности, аграрного использования земли и аграрных систем. Стройна вследствие небольшого количества земли на одно хозяйство и недостатка леса сохранила старую поликультурную систему, при чем общественное и экономическое развитие сказалось в уменьшении численности населения и в менее интенсивной обработке земли. В Копривне крестьяне с земледелия перешли на лесоводство, вследствие чего объем лесных поверхностей увеличился. Главной экономической отраслью являются лесоводство и животноводство. Обработано только 25% полей. Главная пища — картофель и рожь, тогда как других культур не сеют. Эти культуры дают неплохой урожай, так как изза большого количества скота удобрений имеется достаточно, тогда как лугов и пастбищ вообще не удобряют. Культурные растения, предназначенные для человеческой пищи составляют 75% всех культур, 96% кормовых растений добывается на лугах и пастбищах. Из домашних животных разводят главным образом коров, при чем внимание обращается на молочность. Для возки дерева разводят также лошадей, тогда как другие породы животных служат лишь для домашних нужд. Производство культурных растений на 1 гектар возделанной земли равняется 3,2 зерновым единицам (растений для пищи людей) 13,4 кормовых растений и 3 зерновых единицы. На одного человека населения приходится 61,1 зерновых единиц и 4,9 голов скота, а на одного активного члена сельскохозяйственного населения 94,7 зерновых единиц и 6,34 голов скота.

РУНЕЧ В Словенских горах на систему сельского хозяйства и использование земли сильно влияют виноградарство и садоводство. Деревня Рунеч лежит среди западных Лютомерско-орможских холмов 280 до 320 м. над уровнем моря. Холмы имеют смягченный рельеф и пологие склоны, покрытые толстым слоем песчаной и глинистой земли. В этой местности в последнее время виноградарство - вследствие пологих склонов и вытекающей отсюда меньшей изоляцией при введении более рациональных форм хозяйства - отстает изза конкуренции соседних местностей, обладающих более благоприятным рельефом.

В последнее время поверхность, засаженная виноградниками уменьшилась на половину, размеры полей и лугов же сильно возросли. Объем культур, предназначенных для пищи людей растет с одной стороны, и кормовых растений с другой почти одинаков ( 47% : 53% ). Сеют главным образом пшеницу, рожь и картофель, что показывает, что урожай п едназначен для домашнего потребления. На продажу разводят фрукты, которые составляют 1/5 для пищи предназначенных растений. По сравнению с альпийской местностью луга и пастбища дают сравнительно мало кормовых растений, тогда как кукуруза и клевер играют большую роль. Длинный период вегетации, особенно теплая осень делает возможным получать урожай с растений, растущих по жнивью. Главным образом проводится 4- годичный севооборот : первый год - картофель, Второй - пшеница, третий - рожь или ячмень, а четвертый - клевер. Из животных разводят главным образом коров, при чем главное внимание обращается на молочность. Разводят также много свиней и домашней птицы. Производство растений на гектар равняется 26,2 зерновых единиц. На человека приходится 11,2 зерновых единиц и 0,6 голов скота. На одного активного члена сельского населения приходится 25.5 зерновых единиц и 1,12 голов скота.

НУНСКАЯ ГРАБА - виноградарский район, охватывающий продолговатую долину с крутыми склонами. Микроклиматические условия в этой местности особенно благоприятны для разведения винограда: осадков здесь 990 мм, средняя температура в июле равняется 20<sup>o</sup>Ц. Сумма температур периода вегетации никогда не бывает ниже 3000<sup>o</sup>Ц. Заморозки и град бывают, но редко. До второй мировой войны большинство виноградников принадлежало горожанам из Австрии ( Грац, Радгона ), возделывали же их наемные виноградари. После национализации и упразднения института виноградарей - издольщиков в собственность социалистического сектора перешло 70% земли, главным образом виноградников. Почти все эти виноградники сейчас устроили на террасах, которые обрабатываются машинами. Частной собственностью осталась земля, имеющая для виноградарства меньшее значение. Там хозяйничают крестьяне - единоличники и рабочие комбината. Производство культурных расений и роль животноводства мало чем отличаются от таковых же в Рунече. Частные виноградники в плохом состоянии, многие отмирают и превращаются в поля и луга. Вследствие введения террас и лучших сортов винограда производство в виноградниках возросла с приблизительно 18 зерновых единиц на гектар, чему она и теперь равняется в устарелых частных виноградниках, уже на 50 зерновых единиц на гектар.

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Вышеупомянутые районы сильно отличаются друг от друга как по общим природным условиям, так и по своей роли в социальногеографическом развитии местности. Во времена автаркического хозяйства, когда крестьянская семья жила исключительно сельским хозяйством, между экономическими потенциалами крупного крестьянского хозяйства в Копривне, среднего в Стройне и маленького в Словенских горах почти не было большой разницы вследствие менее благоприятных природных условий в Альпах и более благоприятных в Словенских горах. Вследствие роста цен на дерево наличие более крупных лесных поверхностей привело к большей дифференциации так как ценность больших крестьянских хозяйств в лесистой местности сильно возросла, несмотря на иначе менее благоприятные природные условия. Внедрение же современной агротехники в последнее время сильно меняет ценность отдельных форм рельефа и вносит изменение в способ использования земли. В альпийской местности полей все меньше и меньше, т.к. эти последние превращают в луга и пастбища в холмистой же виноградарской местности, обладающей благоприятными микроклиматическими условиями же устраиваются террасы, обрабатываемые при помощи машин. Там, где условия для разведения винограда неблагоприятны, виноградники превращаются в фруктовые сады, поля и луга. Районы, природные условия которых особенно благоприятны для той или иной культуры, подверглись особенно ощутительным переменам относительно структуры собственности и связанного с ней способа использования земли. В этих районах до второй мировой войны земля беспрестанно переходила в чужие, некрестьянские руки. После второй мировой войны вследствие национализации земли в Копривне возникло крупное социалистическое лесное хозяйство, а в Нунской грабе современный социалистический виноградарский комбинат. Характерно для обоих то, что благодаря более интенсивной обработке земли производительность в них быстро растет.

Употребление современной техники в сельском хозяйстве стало причиной быстрого упадка полевых культур в относительно рельефа менее благоприятных условиях и перемены характера сельского хозяйства в таких районах. В связи с разными климатическими условиями со структурой собственности, с большим или меньшим влиянием индустриализации эти районы — по интенсивности и способу обработки земли перетерпевают разные изменения, как по местностям, так и по отдельным хозяйствам. В Копривне, где земли у крестьян больше, а природные условия менее благоприятны, крестьяне быстро переходят на лесоводство и животноводство. Из культур, предназначенных для пищи, интенсивно разводят на небольших поверхностях картофель и рожь, а на остальной земле экстенсивно разводят кормовые растения. Севооборот упразднен, картофель и рожь разводят на по рельефу более подходящих, хорошо удобряемых полях. В Стройне, не смотря на меньшее число рабочих рук, сохранилась старая система хозяйства, при которой крестьянин старается как можно больше обеспечить себя собственными средствами. В альпийской местности, где преобладает экстенсивное производство кормовых растений для скота на лугах и пастбищах, производство растений, выраженная в зерновых единицах

и в числе голов скота на одного человека земледельческого населения значительно выше, чем в Словенских горицах, где культуры для пищи и для корма возделывают интенсивно на небольших поверхностях.

В альпийских районах, где корм для животных добывается экстенсивным путем на лугах и пастбищах, производство растений и количество голов скота на гектар низкая, а на одного человека сельского населения, вследствие редкой населенности, очень высокая, тогда как в виноградарских районах мы наблюдаем совсем обратную картину.

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THE MAPPING OF LAND UTILIZATION AND THE STUDY OF AGRARIAN STRUCTURES AND SYSTEMS IN YUGOSLAVIA

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The post-war social and economic development of Yugoslavia is characterized by quick industrialization and socialization of the agrarian production. This development is reflected in the quick changes in the economic structure of the population, in the changes in the agrarian structure and in the changes in the ways of utilizing land in agrarian as well as in non-agrarian regions. Since 1953 the number of active rural population has decreased by ca. 500.000 people. The secondary and the tertiary sectors of the economic activities has been taking up not only the natural increase of the adult population but also a large number of the agrarian population.

Decline of the percentage of population active in agrarian production

Table No. 1<sup>†</sup>

Year	SFRJ	Serbia	Croatia	Slovenia	Bosnia Hercegovina	Macedonia	Monte- negro						
		+	+	+	+	+	+						
1948	70.6	74.5	31.9	66.2	47.4	49.0	21.6	77.3	61.7	71.7	11.1	76.0	51.4
1953	60.9	67.4	61.5	57.3	37.6	43.0	17.9	63.6	21.7	65.2	41.3	58.8	21.1
1961	59.1	59.1	71.4	45.2	67.5	31.5	20.2	54.7	31.0	55.7	41.0	46.6	51.1

We can follow a process of a very quick destratification of the village population, which starts on the one hand a process of emigration of the recent agrarian population into towns, or - on the other hand, very characteristic of Yugoslavia - the farming population changes its occupations, remains at its village homes but starts to travel daily to work in the nearby or comparatively far-off economic centres.

<sup>†</sup>) The data in the above table are from:  
Konačni rezultati popisa stanovništva 1948. g., knj. III. Savezni zavod za statistiku i evidenciju, Beograd 1954; Popis stanovništva 1953, knj. V, Savezni zavod za statistiku, Beograd 1960; Statistički bilten br. 250 Stanovništvo i domaćinstva, Savezni zavod za statistiku, Beograd 1962.



The changes in the occupational stratification of the village is due to the unprofitableness of the peasant households, which predominate in Yugoslavia, and to the need for more labour in the rapidly developing non-agrarian economic branches, which makeke from one period to another more posts available. Nowadays a double job of the members of peasant households is a regular thing in Yugoslavia, and it is precisely this economic relation between income from non-agrarian occupation and from the land that decisively influences the way of land utilization and the agrarian economy. With the raise of the income and of the professional qualification of the members of peasant households falls their dependence on the income from the land and consequently the higher qualifications and the corresponding raise in the income of the members of peasant households in non-agrarian occupations results in a decline in the intensiveness of land utilization. This process shows a higher percentage in flat-surface areas with strong industrial centres. Within the sphere of industrialized centres we find now, owing to the changes in the qualifications of the members of the peasant households and owing to the declining interest for the intensive cultivation of land, ripe conditions for socialization: in such places big specialized farming firms have been started under the name of "agrokombinati".

Processes of this kind, have which are all characterized by elements of demogeographic and economic nature, have made it possible to distinguish <sup>as regards</sup> ~~with reference to~~ the degree of intensiveness of land utilization between <sup>four</sup> ~~three~~ types of regions:

- a) Regions in the neighbourhood of towns in the flat-surface areas, where a specialized production within the framework of the socialist sector is being formed (agrokombinati).
- b) The wider neighbourhood of the industrial centres with less favourable conditions for arrondation and for modern farming production, where the land is in the hands of members of peasant households with double income. The poly-crop production is being readily abandoned and a re-orientation towards certain specialized economic branches is taking place in the prospect of selling the products on the markets.
- c) The predominantly agrarian regions in the mountainous parts, in the Karst and in the peripnereal parts of the sub-Panonician territory, ~~which owing to the~~ where no favourable conditions for the modern specialised farming exist, because the population is emigrating for good and because the intensiveness of land utilization is in the decline.

d) Regions with favourable natural conditions for farming but distant from the industrial centres, which are owing to the specific conditions orientating themselves towards one branch (cultivation of vineyards, fruit-growing, industrial <sup>crops</sup> plants, forestry), the production is in the hands of the socialist sector either in the form of "agrokombinati" or in the form of co-operation.

~~The Institute of Geography at the University of Ljubljana~~ On the basis of the results achieved in the investigations of similar kinds by the older geographers (Melik, Ilešič)<sup>2</sup> the Institute of Geography at the University of Ljubljana has started in the last two years a systematic research in some specimens of places that can be classified in the above mentioned types of regions. This work has gained in its intensity with the beginning of <sup>the</sup> co-ordinated work with the Polish colleagues under the guidance of Prof. Kostrowicki. The mapping of land utilization and the study of agrarian systems is being co-ordinated in our country within the framework of a special commission at the Association of Geographical Societies of Yugoslavia. The work itself is helped by the collaboration on the part of the Chairs of Geography of the faculties together with the students. The results achieved in our work so far call for a co-ordination of the activities of all Yugoslav geographers; consequently we are having <sup>in Slovenia</sup> from June 11 to June 13 a federal symposium at which a comprehensive programme for systematic mapping of the typical regions of Yugoslavia as well as a unified methodology (related to the international methods) are to be prepared.

The heterogeneity of the natural conditions and the big differences in the economic development in the individual regions of Yugoslavia, <sup>such</sup> as they have been inherited from the pre-war Yugoslavia, exercise a decisive influence over the way and the systems of utilization of land. For that reason it has been considered imperative that we

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should take into consideration the valuable experience of the agrarian geographers from the middle-european countries when preparing the methods of research that would be adequate ~~with reference~~ to our social and natural conditions. The work on the terrain, the work with questionnaires, and mapping have all been backed to a considerable degree by the valuable experience of the Polish colleagues headed by Prof. Kostrowicki; the genetic-social aspects have been taken over from the Munich school directed by Prof. Hartke. We have also found valuable the technical literature of Prof. Enyedi from Hungary and of Prof. Rubitschek from Eastern Germany.

The Institute of Geography at the University of Ljubljana is <sup>very intensively</sup> investigating beside demogeographic problems the agrarian-geographical problems, the social problems of the village and the agrarian utilization of land. Systematic work has only just been started. This is why it is as yet impossible to give any final picture of the ways of land utilization, of agrarian production, and of agrarian systems for the whole of Yugoslavia, Slovenia or for any wider region, but only for much smaller regions. Our report is thus restricted to specimens of investigation of the agrarian-mountaineous Mežiška dolina (the Alps - the Karawanke)<sup>1)</sup> and the vine-growing eastern Slovenske gorice (sub-Pan<sup>~</sup>nonian hill-land)<sup>2)</sup>. The characteristic which both regions had in common was the predominance of farming economy which is only very slightly relying on income from outside farming but is already more or less subject to modernization and rationalization. Another of their features is the mingling of the private ways of farming economy with the socialist type of economy. In Slovenske gorice the socialist type of economy is making its way in the vineyards; in the Alpine territory in the forest areas. In order to give a better demonstration of the difference in the ways of utilization of land and of the agrarian systems within the same region (which is due to the different microgeographical, socio-economic factors), we present a discussion of Mežiška dolina and of two settlements in the vine-growing Slovenske gorice. In both region we have chosen first one village, where owing to the less favourable natural ~~conditions~~ and social conditions the old poly-crop way of production within the framework of private land-ownership persists (Strojno in the

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Alpine region, and Runeč in the vine-growing Slovenske gorice) and two villages with specialised and rather socialised farming production (Koprivna in the Alpine region, and Nunska graba in Slovenske gorice).

The relief in "ežiška dolina shows on the impermeable rocky stones from Paleozoic and from Tertiary light and unsharp forms which are covered with a thicker layer of soil as well as on the lime-stones from Mezozoic steeper forms covered with a thinner layer of soil, which all ~~depend~~ owing to the varying degree of ~~horizontal~~ dissection, of exposition and of altitude as well as owing to the different socio-historical development offer varying conditions for utilization in farming.

STROJNA comprises a sizable complex of the mountaineous world on the impermeable rocky-stones of unsharp relief forms with numerous levels of flatter surface which offer particularly on the sunny sides favourable conditions for farming. The territory is populated in the form of solitary little farms distributed in terraces. Owing to the big distance from the non-agrarian economic centres and since the territory lies relatively high above sea-level (1000 meters), the modern forms of rural economy are making here rather smaller progress than elsewhere in Slovenia and this is also the reason why the old forms of poly-crop economy have been retained. The influence of industrialization and of the modern social economic development can be traced above all in the depopulation; the young labour has emigrated, the percentage of active rural population being only 20%. Only half of the fields are being tilled, the rest of them are being used as extensive meadows neither manured nor sown with grass. Stock-raising during the last twenty years is also on the decline, for about 30%. A four-year rotation system is predominating: first year - crops requiring hilling; second year - wheat, third year - rye, fourth year - oats. On farming surfaces the percentage of food crops amounts to 25% of corn units of the total vegetation production. Among the food crops rye, potatoes, and wheat predominate in approximately the same percentage; 80% of fodder crops come from the meadows and pastures, the remaining 20% are yielded by barley, oats, beetroot grown in the fields. Vegetation production is very low, it amounts only to 8.3 corn units per ha., for food crops 13.4 corn units and for fodder crops 7.2 corn units.

The raising of stock is not specialized. Almost three thirds of the total worth of stock in terms of animal units constitutes cattle. With cattle according to the worth (in animal units) half of it are cows, the rest oxen or young animals. One fourth of animal units comes <sup>from</sup> ~~on~~ horses and swine; poultry is very limited in number. The raising of stock represents within the framework of the total agrarian economy a leading economic branch, and it also strongly ~~back~~ <sup>backs</sup> agriculture by such means as manure, animal work in the fields and in transport. Vegetation production per person of the agrarian population amounts to 16.1 corn units and to 1.078 animal units; and per person of the active agrarian population 34.2 corn units and 5.54 animal units.

KOPRIVNA A totally different picture of land utilization and of agrarian economy is shown by Koprivna, which lies in the southern part of the valley in the more strongly dissected relief on the rocky stones from Paleozoic and on the metamorphic stones. This territory is characterized by its position high above sea-level; most of the households being situated more than 1000 meter above sea-level. The layers of soil are comparatively thick, but because of considerable quantities of rain and snow (1452 millimeters) as well as to the shadowy positions the soil is of inferior quality with frequent symptoms of marsh-land. Owing to the not so good natural conditions along the upper line of settlements more of land was necessary in the past to provide living for the family - hence big land-ownership is in predominance - on the average 35 ha - whereas in Strojna, where the natural conditions are better the same figure is 22 ha. As long as the farming economy relied on stock raising and agriculture, no essential difference existed as regards the economic strength between a big farm in Koprivna and a medium-sized one in Strojna. With the raise of the price of wood or timber there started to appear considerable differences in the transformation of the land in respects of agrarian land utilization and of agrarian systems. Strojna has owing to the smaller land-ownership and to the lack of forest remained at the poly-crop system of economy; the influence of the general social and economic development is seen only in the depopulation and in the abandoning of the intensive land utilization. The agrarian economy in Koprivna, however, was quick to transform itself into forestry, which is reflected in the growth of the forest areas. The main branches of economy are forestry and stock-raising. Only 25% of the fields are

are being cultivated. The two chief food crops are rye and potatoes, ~~the~~ other crops are no longer grown practically. The food crops give comparatively good yields, as they are owing to the plenty of stock amply manured, but the meadows and pastures are not manured. The percentage of food crops is 7.5% of the total vegetation production; 96% of fodder crops are grown on the meadows and pastures. With stock-raising, the breeding of cattle is of chief importance, the production of milk is here also duly emphasized. The breeding of horses is owing to the transport of wood also of considerable importance; other kinds of domestic animals are kept only for immediate use at home. The vegetation production per ha of farming surface is 3.2 corn units ~~(with the food crops) amounting to~~ - with food crops 13.4 corn units and with fodder crops 3 corn units. Per person of the agrarian population there comes of the vegetation production 61.1 corn units, and 4.9 animal units. Per person of the active agrarian population 94.7 corn units and 6.34 animal units.

RUNEČ In Slovenske gorice the system of the farming economy/and the utilization of land are ~~is~~ decisively influenced by growing of vineyards and orchards. The settlement of Runeč lies in the western Ljutomerske ormoške gorice, 280-320 meters above sea-level. It lies in a hill-land with unsharp relief forms, with mild slopes, covered with a thick layer of sandy soil or clay. In this territory the growing of vineyards has in recent times because of the less steep slopes and consequently smaller isolation with the ~~advance~~ of the more rational forms of economy declined, which is ~~again~~ also accounted for by the commercial competition with the neighbouring regions with more favourable relief.

In recent years the extent of the vineyard surfaces has been decreased by half, whereas the fields and the meadows have expanded considerably. The worth of food crops and of fodder crops is fairly equalized (47% + 53%). With food crops the best yields come from potatoes, wheat and rye, which suggest that the production is orientated towards meeting domestic requirements. An orientation towards the production of goods for sale is suggested by the growing of fruit, which gives one fifth of the production of food crops. In contrast to the Alpine regions it is only a small percentage of the fodder crops production that is constituted by meadows and pastures; on the contrary the participation of clover and maize is characteristically high. The long vegetation period, particularly warm autumns, make it possible to grow crops on stubble-fields. On the whole the four-year rotation is the rule: first year crops requiring hilling, second year wheat, third year rye or barley and fourth year clover. In stock raising the breeding of cattle is most important, the production of milk being here the growing feature. A high percentage of swine is characteristic as well. Poultry is likewise significant. The vegetation production per ha of farming surface amounts to 26.2 corn units. Vegetation production per person of the agrarian population comes to 11.2 corn units, and 0.6 animal units. With reference to the active agrarian population the same figures per person are 25.5 corn units and 1.12 animal units.

NUMSKA GRABA is a vine-growing territory in the oblong valley with relatively steep slopes. Microclimatic conditions are on these slopes extraordinarily favourable for the growing of vine, precipitations come to 990 millimeters, the average June temperature is 20°C. The temperature sum of the vegetation period never sinks below 3000°C. The chief climatic handicaps are hail and frost, which are rare. Until World War II most of the land was owned by townsmen from Austria (Radgona, Graz), whose high quality vineyards were being cultivated by the local skilled labour. With the nationalization and the abolishment of former relationships 70% of the vineyard surfaces has passed into the possession of the social sector. Almost all vineyard surfaces have been re-arranged into terraces, where a mechanized way of cultivation is now established. Areas that are not significant for vine-growing have remained in the hand of private ownership, they are run economically by private farmer-peasants or by the workers from the "agrokombinati". The production of food and of fodder crops as well as the role of stock raising is similar to that in Rumeč. Private vineyards are under continuous retrogression,

several of them are in the phase of decay and they are being changed <sup>into</sup> meadows or sometimes fields. By re-arranging the vineyards in a modern terrace system and by improving the qualities of vines the production of vineyards has been raised from the approximate 18 corn units per ha (such as it still persists in the unmodernized private vineyards) to 50 corn units per ha.

The region under the present discussion shows marked differences as regards the total effects of the natural conditions and ~~the~~ their significance for the social and demogeographic development of the country. In the period of autarkic economy, when farming represented the only source of living for the farming household, no essential differences existed ~~between the economic power~~ between the economic power of a bigger farm in Koprivna, a medium-sized one in Strojna and a small one in Slovenske gorice as the natural conditions in the Alps were less favourable and in Slovenske gorice more favourable. With the growing prices of wood the bigger or the smaller forest-ownership made for a strong differentiation and was quick to raise the worth of the bigger farms with wood even in the less favourable natural conditions. The introduction of modern agrotechnique has been causing in the recent times a change in the respective values of the relief surfaces and accordingly a change in the way of land utilization. That is in the Alpine regions reflected in the abandoning of fields which are being changed into meadows, pastures and forest, whereas in the vine-growing parts with better climatic conditions terraces are being arranged which makes it possible to use machines. Where the natural conditions for vineyards are not good, the vineyards are getting changed into orchards, fields or meadows.

Regions with particularly favourable natural conditions for the growing of individual crops have undergone great changes in the structure of land ownership and with the utilization of land as related to it. In such regions private land had been readily passing until the World War II into the hands of foreign farmers. With the nationalization of those areas after the War we get in Koprivna a big industrial forestry firm, and in Nunska graba a modern socialist vine-growing "kombinat". Both are characterized by the fact that the intensive utilization of land brings a rapid increase in the production.

The influence of introducing modern technology in farming has caused a rapid retrogression of farming in the regions with less favourable



relief conditions and an economic re-orientation of those regions. As to the different climatic conditions, the structure of land ownership and the bigger or smaller influence of industrialization these regions are changing in the intensiveness in the utilization of land and in their economies in various directions. In Koprivna, where bigger property and less favourable natural conditions predominate, the farmers are quickly taking up stock raising and forestry. Of the food crops they grow intensively on small areas potatoes and rye, all the rest of the farming surfaces is left for an extensive acquisition of fodder for the raising of stock. The rotation on the fields has been stopped, the potatoes and rye are grown only in fields with most favourable relief conditions and are regularly well manured. In Strojna the old way of economy has been preserved in spite of the decrease in the number of labour hands, but it is still orientated for self-provision. In the Alpine region, where the extensive growing of fodder for stock predominates in the meadows and pastures, <sup>and where</sup> the vegetation production yields are expressed in corn units and the number of <sup>stock</sup> animals in animal units, <sup>are</sup> per-person is per person of the agrarian population ~~xxxxxxxxxxxx~~ considerably higher than in Slovenske gorice, where the production of fodder and food crops is concentrated on small surfaces of land.

In the Alpine region, where extensive growing of ~~fodder~~ <sup>pasture</sup> fodder on meadows and pastures is predominant, the vegetation production and the number of stock per ha of farming land remains extremely low, whereas per person of the agrarian population it reaches owing to the thin population a very high figure; however, in the vine-growing parts the situation is reverse.

TABLE OF SURVEY

Categories of land	KOPRIVNA		STROJNA		RUNEČ		NUNSKA GRABA	
	ha	%	ha	%	ha	%	ha	%
Fields, gardens	119	4	140	18.8	53.6	27.8	22	17.7
Meadows	149	5	94	12.7	9.5	4.9	3	2.4
Orchards	-	-	-	-	6.6	3.4	22	17.7
Vineyards	-	-	-	-	28.7	15	52	42.-
Pastures	634	21.3	70	9.5	22	11.4	9	7.2
Forest	1993	67	427	57.5	68.6	35.7	11	9
Other categories	80	2.7	11	1.5	3.5	1.8	5	4
<b>TOTAL:</b>	<b>2975</b>	<b>100</b>	<b>742</b>	<b>100</b>	<b>192.5</b>	<b>100</b>	<b>124</b>	<b>100</b>
cultivated fields in								
per cent	24		53.9		100		100	
PRODUCTION: food crops								
give following percentage								
of total production on								
farming surfaces (in corn units)								
	7.5		25.2		46.9		69.4	
Within the scope of food crops (in per cent of corn units)								
the following crops give								
wheat	8.9%		26.0%		29.0%		39.1%	
rye	38.8%		36.6%		13.9%		-	
potatoes	50.0%		26.6%		33.0%		27.8%	
fruit	-		5.0%		20.5%		27.7%	
other crops	2.3%		5.8%		3.6%		5.4%	
Of fodder crops (in per cent of corn units)								
farming surfaces give the following yields								
	92.5		74.8		53.1		30.6	
Within the scope of fodder crops the figures								
for the yields in per cent of corn units are:								
barley	-		4.8		2.1		-	
oats	3.5		8.5		1.3		-	
clover	0.6		3.0		24.7		-	
other fodder crops	0.1		3.7		13.5		19.0	
meadows	74.0		74.0		18.1		20.2	
pastures	21.8		6.0		4.7		3.9	
maize	-		-		35.6		56.9	

KOPRIVNA

STROJNA

RUMIČ

NUNSKA GRABA

Vegetation production in corn units  
per ha of farming surface

a) food crops	13.4	13.4	30.2	23.9
b) fodder crops	3.9	7.2	22.2	21.1
c) together	3.2	8.3	26.2	23.0

Vegetation production in corn units  
per person of agrarian population

a) food crops	4.6	4.1	5.2	3.5
b) fodder crops	56.5	12.0	6.0	1.5
c) together	61.1	16.1	11.2	5.0

Vegetation production in corn units  
per person of active agrarian population

	94.7	84.2	25.5	14.2
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Structure of stock in animal units

Percentage of animal units according to the kinds of animals:

Horses	17.9	13.0	2.7	3.8
Cattle	67.3	69.3	66.8	72.6
Swine	8.6	11.6	25.4	18.4
Sheep, Goats, etc.	4.4	3.7	0.4	-
Poultry	1.8	2.4	4.7	5.2

The percentage of cows expressed in animal units  
taken from the total number of cattle

	54.6	50.8	75.0	82.0
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Number of animal units per  
ha of farming surface

	0.218	0.557	1.15	1.213
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Number of animal units  
per person of agrarian population

	4.9	1.078	0.6	0.417
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Number of animal units per person  
of active agrarian population

	6.34	5.64	1.12	1.18
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THE MAPPING OF LAND UTILIZATION AND THE STUDY OF AGRARIAN  
STRUCTURES AND SYSTEMS IN YUGOSLAVIA

by

Vladimir Klemenčič, Ljubljana, and

Ivo Crkvenčič, Zagreb

The post-war social and economic development of Yugoslavia is characterized by quick industrialization and socialization of the agrarian production. This development is reflected in the quick changes in the economic structure of the population, in the changes in the agrarian structure and in the changes in the ways of utilizing land in agrarian as well as in non-agrarian regions. Since 1953 the number of active rural population has decreased by ca 500.000 people. The secondary and the tertiary sectors of the economic activities has been taking up not only the natural increase of the adult population but also a large number of the agrarian population.

Decline of the percentage of population active in agrarian production

Table No. 1<sup>(+)</sup>

Year	SFRJ	Serbia <sup>+</sup>	Croatia <sup>+</sup>	Slovenia <sup>#</sup>	Bosnia Hercegov.	Macedonia <sup>+</sup>	Montenegro <sup>+</sup>						
1948	70.6	74.5	3.9	66.2	4.4	49.0	21.6	77.3	6.7	71.7	1.1	76.0	5.4
1953	60.9	67.4	6.5	57.3	3.6	43.0	17.9	63.6	2.7	65.2	4.3	58.8	2.1
1961	59.1	59.1	7.4	45.2	6.5	31.5	20.2	54.7	3.0	55.7	4.0	46.6	5.1

We can follow a process of a very quick destratification of the village population, which starts on the one hand a process of emigration of the recent agrarian population into towns, or - on the other hand, very characteristic of Yugoslavia - the farming population changes its occupations, remains at its village homes but starts to travel daily to work in the nearby or comparatively far-off economic

<sup>+</sup>) The data in the above table are from:

Konačni rezultati popisa stanovništva 1948. g., knj. III. Savezni zavod za statistiku i evidenciju, Beograd 1954; Popis stanovništva 1953, knj. V, Savezni zavod za statistiku, Beograd 1960; Statistički bilten br. 250 Stanovništvo i domaćinstva, Savezni zavod za statistiku, Beograd 1962.

centres. The changes in the occupational stratification of the village is due to the unprofitableness of the peasant households, which predominate in Yugoslavia, and to the need for more labour in the rapidly developing non-agrarian economic branches, which make from one period to another more posts available. Nowadays a double job of the members of peasant households is a regular thing in Yugoslavia, and it is precisely this economic relation between income from non-agrarian occupation and from the land that decisively influences the way of land utilization and the agrarian economy. With the raise of the income and of the professional qualification of the members of peasant households falls their dependence on the income from the land and consequently the higher qualifications and the corresponding raise in the income of the members of peasant households in non-agrarian occupations results in a decline in the intensiveness of land utilization. This process shows a higher percentage in flat-surface areas with strong industrial centres. Within the sphere of industrialized centres we find now, owing to the changes in the qualifications of the members of the peasant households and owing to the declining interest for the intensive cultivation of land, ripe conditions for socialization: in such places big specialized farming firms have been started under the name of "agrokombinati".

Processes of this kind, which are all characterized by elements of demogeographic and economic nature, have made it possible to distinguish as regards the degree of intensiveness of land utilization between four types of regions:

- a) Regions in the neighbourhood of towns in flat-surface areas, where a specialized production within the framework of the socialist sector is being formed (agrokombinati).
- b) The wider neighbourhood of the industrial centres with less favourable conditions for arrodation and for modern farming production, where the land is in the hands of members of peasant households with double income. The poly-crop production is being readily abandoned and a reorientation towards certain specialized economic branches is taking place in the prospect of selling the products on the markets.

- c) The predominantly agrarian regions in the mountainous parts, in the Karst and in the periphereal parts of the sub-Pannonian territory, where no favourable conditions for the modern specialised farming exist, because the population is emigrating for good and because the intensiveness of land utilization is in the decline.
- d) Regions with favourable natural conditions for farming but distant from the industrial centres, which are owing to the specific conditions orientating themselves towards one branch (cultivation of vineyards, fruit-growing, industrial crops, forestry), the production is in the hands of the socialist sector either in the form of "agrokombinati" or in the form of co-operation.

On the basis of the results achieved in the investigations of similar kinds by the older geographers (Melik, Ilešič)<sup>2</sup> the Institute of Geography at the University of Ljubljana has started in the last two years a systematic research in some specimens of places that can be classified in the above mentioned types of regions. This work has gained in its intensity with the beginning of the co-ordinated work with the Polish colleagues under the guidance of Prof. Kostrowicki. The mapping of land utilization and the study of agrarian systems is being co-ordinated in our country within the framework of a special commission at the Association of Geographical Societies of Yugoslavia. The work itself is helped by the collaboration on the part of the Chairs of Geography of the faculties together with the students. The results achieved in our work so far call for a co-ordination of the activities of all Yugoslav geographers: consequently we are having in Slovenia from June 11 to June 13 a federal symposium at which a comprehensive programme for systematic mapping of the typical regions of Yugoslavia as well as a unified methodology (related to the international methods) are to be prepared.

The heterogeneity of the natural conditions and the big differen-

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RUNEČ In Slovenske gorice the system of the farming economy and the utilization of land are decisively influenced by growing of vineyards and orchards. The settlement of Runeč lies in the western Ljutomerske ormoške gorice, 280 - 320 meters above sea-level. It lies in a hill-land with unsharp relief forms, with mild slopes, covered with a thick layer of sandy soil or clay. In this territory the growing of vineyards has in recent times because of the less steep

slopes and consequently smaller isolation with the advance of the more rational forms of economy declined, which is also accounted for by the commercial competition with the neighbouring regions with more favourable relief.

In recent years the extent of the vineyard surfaces has been decreased by half, whereas the fields and the meadows have expanded considerably. The worth of food crops and of fodder crops is fairly equalized (74 %: 53 %). With food crops the best yields come from potatoes, wheat and rye, which suggest that the production is orientated towards meeting domestic requirements. An orientation towards the production of goods for sale is suggested by the growing of fruit, which gives one fifth of the production of food crops. In contrast to the Alpine regions it is only a small percentage of the fodder crops production that is constituted by meadows and pastures; on the contrary the participation of clover and maize is characteristically high. The long vegetation period, particularly warm autumns, make it possible to grow crops on stubblefields. On the whole the four-year rotation is the rule: first year crops requiring hilling, second year wheat, third year rye or barley and fourth year clover. In stock raising the breeding of cattle is most important, the production of milk being here the growing feature. A high percentage of swine is characteristic as well. Poultry is likewise significant. The vegetation production per ha of farming surface amounts to 26.2 corn units. Vegetation production per person of the agrarian population comes to 11.2 corn units, and 0.6 animal units. With reference to the active agrarian population the same figures per person are 25.5 corn units and 1.12 animal units.

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townsmen from Austria (Radgona, Graz), whose high quality vineyards were being cultivated by the local skilled labour. With the nationalization and the abolishment of former relationships 70 % of the vineyard surfaces has passed into the possession of the social sector. Almost all vineyard surfaces have been re-arranged into terraces, where a mechanized way of cultivation is now established. Areas that are not significant for vine-growing have remained in the hand of private ownership, they are run economically by private farmer-peasants or by the workes from the "agrokombinati". The production of food and of fodder crops as well as the role of stock raising is similar to that in Runeč. Private vineyards are under continuous retrogression, several of them are in the phase of decay and they are being changed into meadows or sometimes fields. By re-arranging the vineyards in a modern terrace system and by improving the qualities of vines the production of vineyards has been raised from the approximate 18 corn units per ha (such as it still persists in the unmodernized private vineyards) to 50 corn units per ha.

The region under the present discussion shows marked differences as regards the total effects of the natural conditions and their significance for the social and demogeographic development of the country. In the period of autarkic economy, when farming represented the only source of living for the farming household, no essential differences existed between the economic power of a bigger farm in Koprivna, a medium-sized one in Strojna and a small one in Slovenske gorice as the natural conditions in the Alps were less favourable and in Slovenske gorice more favourable. With the growing prices of wood the bigger or the smaller forest-ownership made for a strong differentiation and was quick to raise the worth of the bigger farms with wood even in the less favourable natural conditions. The introduction of modern agrotechnique has been causing in the recent times a change in the respective values of the relief surfaces and accordingly a change in the way of land utilization. That is in the Alpine regions reflected in the abandoning of fields which are being changed into meadows, pastures and forest, whereas in the vine-growing parts with better climatic conditions terraces are being arranged which makes it possible

to use machines. Where the natural conditions for vineyards are not good, the vineyards are getting changed into orchards, fields or meadows.

Regions with particularly favourable natural conditions for the growing of individual crops have underwent great changes in the structure of land ownership and with the utilization of land as related to it. In such regions private land had been readily passing until the World War II into the hands of foreign farmers. With the nationalization of those areas after the War we get in Koprivna a big industrial forestry firm, and in Nunska graba a modern socialist vine-growing "kombinat". Both are characterized by the fact that the intensive utilization of land brings a rapid increase in the production.

The influence of introducing modern technology in farming has caused a rapid retrogression of farming in the regions with less favourable relief conditions and an economic re-orientation of those regions. As to the different climatic conditions, the structure of land ownership and the bigger or smaller influence of industrialization these regions are changing in the intensiveness in the utilization of land and in their economies in various directions. In Koprivna, where bigger property and less favourable natural conditions predominate, the farmers are quickly taking up stock raising and forestry. Of the food crops they grow intensively on small areas potatoes and rye, all the rest of the farming surfaces is left for an extensive acquisition of fodder for the raising of stock. The rotation on the fields has been stopped, the potatoes and rye are grown only in fields with most favourable relief conditions and are regularly well manured. In Strojna the old way of economy has been preserved in spite of the decrease in the number of labour hands, but it is still orientated for self-provision. In the Alpine region, where the extensive growing of fodder for stock predominates in the meadows and pastures and where the vegetation production yields, expressed in corn units and the number of stock in animal units, are per person of the agrarian population considerably higher than in Slovenske gorice, where the production of

fodder and food crops is concentrated on small surfaces of land.

In the Alpine region, where extensive growing of fodder on meadows and pastures is predominant, the vegetation production and the number of stock per ha of farming land remains extremely low, whereas per person of the agrarian population it reaches owing to the this population a very high figure; however, in the vine-growing parts the situation is reverse.

TABLE OF SURVEY

Categories of land	KOPRIVNA		STROJNA		RUNEČ		NUNSKA GRABA	
	ha	%	ha	%	ha	%	ha	%
Fields gardens	119	4	140	18.8	53.6	27.8	22	17.7
Meadows	149	5	94	12.7	9.5	4.9	3	2.4
Orchards	-	-	-	-	6.6	3.4	22	17.7
Vineyards	-	-	-	-	28.7	15	52	42
Pastures	634	21.3	70	9.5	22	11.4	9	7.2
Forest	1993	67	427	57.5	68.6	35.7	11	9
Other categories	80	2.7	11	1.5	3.5	1.8	5	4
<b>TOTAL:</b>	<b>2975</b>	<b>100</b>	<b>742</b>	<b>100</b>	<b>192.5</b>	<b>100</b>	<b>124</b>	<b>100</b>

cultivated fields in per cent	24	53.9	100	100
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PRODUCTION: food crops give following percentage of total production on farming surfaces (in corn units)	7.5	25.2	46.9	69.4
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Within the scope of food crops (in per cent of corn units) the following crops give

wheat	8.9 %	26.0 %	29.0 %	39.1 %
rye	38.8 %	36.6 %	13.9 %	-
potatoes	50.0 %	26.6 %	33.0 %	27.8 %
fruit	-	5.0 %	20.5 %	27.7 %
other crops	2.3 %	5.8 %	3.6 %	5.4 %

Of fodder crops (in per cent of corn units) farming surfaces give the following yields

	92.5 %	74.8	53.1	30.6
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Within the scope of fodder crops the figures for the yields in per cent of corn units are:

barley	-	4.8	2.1	-
oats	3.5	8.5	1.3	-
clover	0.6	3.0	24.7	-
other fodder crops	0.1	3.7	13.5	19.0
meadows	74.0	74.0	18.1	20.2
pastures	21.8	6.0	4.7	3.9
maize	-	-	35.6	56.9

	KOPRIVNA	STROJNA	RUNEČ	NUNSKA GRABA
Vegetation production in corn units per ha of farming surface				
a) food crops	13.4	13.4	30.2	23.9
b) fodder crops	3.0	7.2	22.2	21.1
c) together	3.2	813	26.2	23.0
Vegetation production in corn units per person of agrarian population				
a) food crops	4.6	4.1	5.2	3.5
b) fodder crops	56.5	12.0	6.0	1.5
c) together	61.1	16.1	11.2	5.0
Vegetation production in corn units per person of active agrarian population				
	94.7	84.2	25.5	14.2
Structure of stock in animal units Percentage of animal units according to the kinds of animals:				
Horses	17.9	13.0	2.7	3.8
Cattle	67.3	69.3	66.8	72.6
Swine	8.6	11.6	25.4	18.4
Sheep, Goats, etc.	4.4	3.7	0.4	-
Poultry	1.8	2.4	4.7	5.2
The percentage of cows expressed in animal units taken from the total number of cattle				
	54.6	50.8	75.0	82.0
Number of animal units per ha of farming surface				
	0.218	0.557	1.15	1.213
Number of animal units per person of agrarian population				
	4.9	1.078	0.6	0.417
Number of animal units per person of active agrarian population				
	6.34	5.64	1.12	1.18



THE MAPPING OF LAND UTILIZATION AND THE STUDY OF AGRARIAN STRUCTURES AND SYSTEMS IN YUGOSLAVIA

by Vladimir Klemenčič, Ljubljana, and Ivo Crkvenčič, Zagreb

The post-war social and economic development of Yugoslavia is characterized by quick industrialization and socialization of the agrarian production. This development is reflected in the quick changes in the economic structure of the population, in the changes in the agrarian structure and in the changes in the ways of utilizing land in agrarian as well as in non-agrarian regions. Since 1953 the number of active rural population has decreased by ca 500.000 people. The secondary and the tertiary sectors of the economic activities has been taking up not only the natural increase of the adult population but also a large number of the agrarian population.

Decline of the percentage of population active in agrarian production

Table No. 1<sup>(+)</sup>

Year	SFRJ	Serbia	Croatia	Slovenia	Bosnia	Hercegov.	Macedonia	Montenegro
1948	70.6	74.5 <sup>+</sup>	66.2 <sup>+</sup>	49.0 <sup>+</sup>	21.6 <sup>+</sup>	77.3 <sup>+</sup>	6.7 <sup>+</sup>	71.7 <sup>+</sup>
1953	60.9	67.4 <sup>+</sup>	57.3 <sup>+</sup>	43.0 <sup>+</sup>	17.9 <sup>+</sup>	63.6 <sup>+</sup>	2.7 <sup>+</sup>	65.2 <sup>+</sup>
1961	59.1	59.1 <sup>+</sup>	45.2 <sup>+</sup>	31.5 <sup>+</sup>	20.2 <sup>+</sup>	54.7 <sup>+</sup>	3.0 <sup>+</sup>	55.7 <sup>+</sup>

We can follow a process of a very quick destratification of the village population, which starts on the one hand a process of emigration of the recent agrarian population into towns, or - on the other hand, very characteristic of Yugoslavia - the farming population changes its occupations, remains at its village homes but starts to travel daily to work in the nearby or comparatively far-off economic

+) The data in the above table are from: Konačni rezultati popisa stanovništva 1948. g., knj. III. Savezni zavod za statistiku i evidenciju, Beograd 1954; Popis stanovništva 1953, knj. V, Savezni zavod za statistiku, Beograd 1960; Statistički bilten br. 250 Stanovništvo i domaćinstva, Savezni zavod za statistiku, Beograd 1962.

centres. The changes in the occupational stratification of the village is due to the unprofitableness of the peasant households, which predominate in Yugoslavia, and to the need for more labour in the rapidly developing non-agrarian economic branches, which make from one period to another more posts available. Nowadays a double job of the members of peasant households is a regular thing in Yugoslavia, and it is precisely this economic relation between income from non-agrarian occupation and from the land that decisively influences the way of land utilization and the agrarian economy. With the raise of the income and of the professional qualification of the members of peasant households falls their dependence on the income from the land and consequently the higher qualifications and the corresponding raise in the income of the members of peasant households in non-agrarian occupations results in a decline in the intensiveness of land utilization. This process shows a higher percentage in flat-surface areas with strong industrial centres. Within the sphere of industrialized centres we find now, owing to the changes in the qualifications of the members of the peasant households and owing to the declining interest for the intensive cultivation of land, ripe conditions for socialization: in such places big specialized farming firms have been started under the name of "agrokombinati".

Processes of this kind, which are all characterized by elements of demogeographic and economic nature, have made it possible to distinguish as regards the degree of intensiveness of land utilization between four types of regions:

- a) Regions in the neighbourhood of towns in flat-surface areas, where a specialized production within the framework of the socialist sector is being formed (agrokombinati).
- b) The wider neighbourhood of the industrial centres with less favourable conditions for arrodation and for modern farming production, where the land is in the hands of members of peasant households with double income. The poly-crop production is being readily abandoned and a reorientation towards certain specialized economic branches is taking place in the prospect of selling the products on the markets.

- c) The predominantly agrarian regions in the mountainous parts, in the Karst and in the peripheral parts of the sub-Pannonian territory, where no favourable conditions for the modern specialised farming exist, because the population is emigrating for good and because the intensiveness of land utilization is in the decline.
- d) Regions with favourable natural conditions for farming but distant from the industrial centres, which are owing to the specific conditions orientating themselves towards one branch (cultivation of vineyards, fruit-growing, industrial crops, forestry), the production is in the hands of the socialist sector either in the form of "agrokombinati" or in the form of co-operation.

On the basis of the results achieved in the investigations of similar kinds by the older geographers (Melik, Ilešič)<sup>2</sup> the Institute of Geography at the University of Ljubljana has started in the last two years a systematic research in some specimens of places that can be classified in the above mentioned types of regions. This work has gained in its intensity with the beginning of the co-ordinated work with the Polish colleagues under the guidance of Prof. Kostrowicki. The mapping of land utilization and the study of agrarian systems is being co-ordinated in our country within the framework of a special commission at the Association of Geographical Societies of Yugoslavia. The work itself is helped by the collaboration on the part of the Chairs of Geography of the faculties together with the students. The results achieved in our work so far call for a co-ordination of the activities of all Yugoslav geographers: consequently we are having in Slovenia from June 11 to June 13 a federal symposium at which a comprehensive programme for systematic mapping of the typical regions of Yugoslavia as well as a unified methodology (related to the international methods) are to be prepared.

The heterogeneousness of the natural conditions and the big differen-

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2) Ilešič S., L'état actuel et les problèmes des recherches sur l'utilisation du sol en Yougoslavie, and Crkvenčič I., "Land Use Mapping under Yugoslav Conditions": Land Utilization, Methods and Problems of Research, Polish Academy of Science, Institute of Geography, Geographical Studies No. 31, Warszawa 1962.

ces in the economic development in the individual regions of Yugoslavia, such as have been inherited from the pre-war Yugoslavia, exercise a decisive influence over the way and the systems of utilitations of land. For that reason it has been considered imperative that we should take into consideration the valuable experience of the agrarian geographers from the middle-european countries when preparing the methods of research that would be adequate to our social and natural conditions. The work on the terrain, the work with questionnaires, and mapping have all been backed to a considerable degree by the valuable experience of the Polish colleagues headed by Prof. Kostrowicki; the genetic-social aspects have been taken over from the Munich school directed by Prof. Hartke. We have also found valuable the technical literature of Prof. Enyedi from Hungary and of Prof. Rubitschek from Eastern Germany.

The Institute of Geography at the University of Ljubljana is very intensively investigating beside demogeographic problems the agrarian-geographical problems, the social problems of the village and the agrarian utilization of land. Systematic work has only just been started. This is why it is as yet impossible to give any final picture of the ways of land utilization, of agrarian production, and of agrarian systems for the whole of Yugoslavia, Slovenia or for any wider region, but only for much smaller regions. Our report is thus restricted to specimens of investigation of the agrarian-mountainous Mežiška dolina (the Alpe - the Karawanke)<sup>1)</sup> and the vine-growing eastern Slovenske gorice (sub-Pannonian hill-land)<sup>2)</sup>. The characteristic which both regions had in common was the predominance of farming economy which is only very slightly relying on income from outside farming but is already more or less subject to modernisation and rationalization. Another of their features is mingling of the private ways of farming economy with the socialist type of economy with the socialist type of economy. In Slovenske gorice the socialist type of economy is making its way in the vineyards; in the Alpine territory in the forest areas. In order

- 1) Jakob Medved, The Social-Geographical Development of Mežiška dolina during the Last Hundred Years (unpublished dissertation)
- 2) Borut Belec, The Agrarian Geography of Ljutomerske gorice (dissertation)

to give a better demonstration of the difference in the ways of utilization of land and of the agrarian systems within the same region (which is due to the different microgeographical, socio-economic factors), we present a discussion of Mežiška dolina and of two settlements in the vine-growing Slovenske gorice. In both region we have chosen first one village, where owing to the less favourable natural and social conditions the old poly-crop way of production within the framework of private land-ownership persists (Strojno in the Alpine region, and Runeč in the vine-growing Slovenske gorice) and two villages with specialised and rather socialised farming production (Koprivna in the Alpine region, and Nunska graba in Slovenske gorice).

The relief in Mežiška dolina shows on the impermeable rocky stones from Paleozoic and from Tertiary light and unsharp forms which are covered with a thicker layer of soil as well as on the lime-stones from Mesozoic steeper forms covered with a thinner layer of soil, which all owing to the varying degree of dissection, of exposition and of altitude as well as owing to the different socio-historical development offer varying conditions for utilization in farming.

STROJNA comprises a sizable complex of the mountaineous world on the impermeable rockstones of unsharp relief forms with numerous levels of flatter surface which offer particularly on the sunny sides favourable conditions for farming. The territory is populated in the form of solitary little farms distributed in terraces. Owing to the big distance from the non-agrarian economic centres and since the territory lies relatively high above sea-level (1000 meters), the modern forms of rural economy are making here rather smaller progress than elsewhere in Slovenia and this is also the reason why the old forms of poly-crop economy have been retained. The influence of industrialization and of the modern social economic development can be traced above all in the depopulation; the young labour has emigrated, the percentage of active rural population being only 20 %. Only half of the fields are being tilled, the rest of them are being used as extensive meadows neither manured nor sown with grass. Stock-raising during the last twenty years is also on the decline, for about 30 %. A four-year rotation system is predominating

first year-crops requiring hilling; second year-wheat, third year - rye, fourth year - oats. On farming surfaces the percentage of food crops amounts to 25 % of corn units of the total vegetation production. Among the food crops rye, potatoes, and wheat predominate in approximately the same percentage; 80 % of fodder crops come from the meadows and pastures, the remaining 20 % are yielded by barley, oats, beetroot grown in the fields. Vegetation production is very low, it amounts only to 8.3 corn units per ha., for food crops 13.4 corn units and for fodder crops 7.2 corn units.

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The region under the present discussion shows marked differences as regards the total effects of the natural conditions and their significance for the social and demogeographic development of the country. In the period of autharctic economy, when farming represented the only source of living for the farming household, no essential differences existed between the economic power of a bigger farm in Koprivna, a medium-sized one in Strojna and a small one in Slovenske gorice as the natural conditions in the Alps were less favourable and in Slovenske gorice more favourable. With the growing prices of wood the bigger or the smaller forest-ownership made for a strong differentiation and was quick to raise the worth of the bigger farms with wood even in the less favourable natural conditions. The introduction of modern agrotechnique has been causing in the recent times a change in the respective values of the relief surfaces and accordingly a change in the way of land utilization. That is in the Alpine regions reflected in the abandoning of fields which are being changed into meadows, pastures and forest, whereas in the vine-growing parts with better climatic conditions terraces are being arranged which makes it possible

to use machines. Where the natural conditions for vineyards are not good, the vineyards are getting changed into orchards, fields or meadows.

Regions with particularly favourable natural conditions for the growing of individual crops have underwent great changes in the structure of land ownership and with the utilization of land as related to it. In such regions private land had been readily passing until the World War II into the hands of foreign farmers. With the nationalization of those areas after the War we get in Koprivna a big industrial forestry firm, and in Nunska graba a modern socialist vine-growing "kombinat". Both are characterized by the fact that the intensive utilization of land brings a rapid increase in the production.

The influence of introducing modern technology in farming has caused a rapid retrogression of farming in the regions with less favourable, relief conditions and an economic re-orientation of those regions. As to the different climatic conditions, the structure of land ownership and the bigger or smaller influence of industrialization these regions are changing in the intensiveness in the utilization of land and in their economies in various directions. In Koprivna, where bigger property and less favourable natural conditions predominate, the farmers are quickly taking up stock raising and forestry. Of the food crops they grow intensively on small areas potatoes and rye, all the rest of the farming surfaces is left for an extensive acquisition of fodder for the raising of stock. The rotation on the fields has been stopped, the potatoes and rye are grown only in fields with most favourable relief conditions and are regularly well manured. In Strojna the old way of economy has been preserved in spite of the decrease in the number of labour hands, but it is still orientated for self-provision. In the Alpine region, where the extensive growing of fodder for stock predominates in the meadows and pastures and where the vegetation production yields, expressed in corn units and the number of stock in animal units, are per person of the agrarian population considerably higher than in Slovenske gorice, where the production of

fodder and food crops is concentrated on small surfaces of land.

In the Alpine region, where extensive growing of fodder on meadows and pastures is predominant, the vegetation production and the number of stock per ha of farming land remains extremely low, whereas per person of the agrarian population it reaches owing to the this population a very high figure; however, in the vine-growing parts the situation is reverse.

TABLE OF SURVEY

Categories of land	KOPRIVNA		STROJNA		RUNEČ		NUNSKA GRABA	
	ha	%	ha	%	ha	%	ha	%
Fields gardens	119	4	140	18.8	53.6	27.8	22	17.7
Meadows	149	5	94	12.7	9.5	4.9	3	2.4
Orchards	-	-	-	-	6.6	3.4	22	17.7
Vineyards	-	-	-	-	28.7	15	52	42
Pastures	634	21.3	70	9.5	22	11.4	9	7.2
Forest	1993	67	427	57.5	68.6	35.7	11	9
Other categories	80	2.7	11	1.5	3.5	1.8	5	4
TOTAL:	2975	100	742	100	192.5	100	124	100
cultivated fields in per cent	24		53.9		100		100	
PRODUCTION: food crops give following percent- age of total production on farming surfaces (in corn units)	7.5		25.2		46.9		69.4	
Within the scope of food crops (in per cent of corn units) the following crops give								
wheat	8.9 %		26.0 %		29.0 %		39.1 %	
rye	38.8 %		36.6 %		13.9 %		-	
potatoes	50.0 %		26.6 %		33.0 %		27.8 %	
fruit	-		5.0 %		20.5 %		27.7 %	
other crops	2.3 %		5.8 %		3.6 %		5.4 %	
Of fodder crops (in per cent of corn units) farming surfaces give the following yields	92.5 %		74.8		53.1		30.6	
Within the scope of fodder crops the figures for the yields in per cent of corn units are:								
barley	-		4.8		2.1		-	
oats	3.5		8.5		1.3		-	
clover	0.6		3.0		24.7		-	
other fodder crops	0.1		3.7		13.5		19.0	
meadows	74.0		74.0		18.1		20.2	
pastures	21.8		6.0		4.7		3.9	
maize	-		-		35.6		56.9	

	KOPRIVNA	STROJNA	RUNEČ	NUNSKA GRABA
Vegetation production in corn units per ha of farming surface				
a) food crops	13.4	13.4	30.2	23.9
b) fodder crops	3.0	7.2	22.2	21.1
c) together	3.2	8.3	26.2	23.0
Vegetation production in corn units per person of agrarian population				
a) food crops	4.6	4.1	5.2	3.5
b) fodder crops	56.5	12.0	6.0	1.5
c) together	61.1	16.1	11.2	5.0
Vegetation production in corn units per person of active agrarian population				
	94.7	84.2	25.5	14.2
Structure of stock in animal units Percentage of animal units according to the kinds of animals:				
Horses	17.9	13.0	2.7	3.8
Cattle	67.3	69.3	66.8	72.6
Swine	8.6	11.6	25.4	18.4
Sheep, Goats, etc.	4.4	3.7	0.4	-
Poultry	1.8	2.4	4.7	5.2
The percentage of cows expressed in animal units taken from the total number of cattle				
	54.6	50.8	75.0	82.0
Number of animal units per ha of farming surface				
	0.218	0.557	1.15	1.213
Number of animal units per person of agrarian population				
	4.9	1.078	0.6	0.417
Number of animal units per person of active agrarian population				
	6.34	5.64	1.12	1.18

THE MAPPING OF LAND UTILIZATION AND THE STUDY OF AGRARIAN  
STRUCTURES AND SYSTEMS IN YUGOSLAVIA

by

Vladimir Klemenčič, Ljubljana, and

Ivo Crkvenčič, Zagreb

The post-war social and economic development of Yugoslavia is characterized by quick industrialization and socialization of the agrarian production. This development is reflected in the quick changes in the economic structure of the population, in the changes in the agrarian structure and in the changes in the ways of utilizing land in agrarian as well as in non-agrarian regions. Since 1953 the number of active rural population has decreased by ca 500.000 people. The secondary and the tertiary sectors of the economic activities has been taking up not only the natural increase of the adult population but also a large number of the agrarian population.

Decline of the percentage of population active in agrarian production

Table No. 1<sup>(+)</sup>

Year	SPRJ	Serbia <sup>+</sup>	Croatia <sup>+</sup>	Slovenia <sup>+</sup>	Bosnia Hercegov.	Macedonia <sup>+</sup>	Montenegro <sup>+</sup>
1948	70.6	74.5	66.2	49.0	77.3	71.7	76.0
1953	60.9	67.4	57.3	43.0	63.6	65.2	58.8
1961	59.1	59.1	45.2	31.5	54.7	55.7	46.6

We can follow a process of a very quick destratification of the village population, which starts on the one hand a process of emigration of the recent agrarian population into towns, or - on the other hand, very characteristic of Yugoslavia - the farming population changes its occupations, remains at its village homes but starts to travel daily to work in the nearby or comparatively far-off economic

+) The data in the above table are from:

Konačni rezultati popisa stanovništva 1948. g., knj. III. Savezni zavod za statistiku i evidenciju, Beograd 1954; Popis stanovništva 1953, knj. V, Savezni zavod za statistiku, Beograd 1960; Statistički bilten br. 250 Stanovništvo i domaćinstva, Savezni zavod za statistiku, Beograd 1962.

centres. The changes in the occupational stratification of the village is due to the unprofitableness of the peasant households, which predominate in Yugoslavia, and to the need for more labour in the rapidly developing non-agrarian economic branches, which make from one period to another more posts available. Nowadays a double job of the members of peasant households is a regular thing in Yugoslavia, and it is precisely this economic relation between income from non-agrarian occupation and from the land that decisively influences the way of land utilization and the agrarian economy. With the raise of the income and of the professional qualification of the members of peasant households falls their dependence on the income from the land and consequently the higher qualifications and the corresponding raise in the income of the members of peasant households in non-agrarian occupations results in a decline in the intensiveness of land utilization. This process shows a higher percentage in flat-surface areas with strong industrial centres. Within the sphere of industrialized centres we find now, owing to the changes in the qualifications of the members of the peasant households and owing to the declining interest for the intensive cultivation of land, ripe conditions for socialization: in such places big specialized farming firms have been started under the name of "agrokombinati".

Processes of this kind, which are all characterized by elements of demogeographic and economic nature, have made it possible to distinguish as regards the degree of intensiveness of land utilization between four types of regions:

- a) Regions in the neighbourhood of towns in flat-surface areas, where a specialized production within the framework of the socialist sector is being formed (agrokombinati).
- b) The wider neighbourhood of the industrial centres with less favourable conditions for arrodation and for modern farming production, where the land is in the hands of members of peasant households with double income. The poly-crop production is being readily abandoned and a reorientation towards certain specialized economic branches is taking place in the prospect of selling the products on the markets.

- c) The predominantly agrarian regions in the mountainous parts, in the Karst and in the peripnereal parts of the sub-Pannonian territory, where no favourable conditions for the modern specialised farming exist, because the population is emigrating for good and because the intensiveness of land utilization is in the decline.
- d) Regions with favourable natural conditions for farming but distant from the industrial centres, which are owing to the specific conditions orientating themselves towards one branch (cultivation of vineyards, fruit-growing, industrial crops, forestry), the production is in the hands of the socialist sector either in the form of "agrokombinati" or in the form of co-operation.

On the basis of the results achieved in the investigations of similar kinds by the older geographers (Melik, Ilešič)<sup>2</sup> the Institute of Geography at the University of Ljubljana has started in the last two years a systematic research in some specimens of places that can be classified in the above mentioned types of regions. This work has gained in its intensity with the beginning of the co-ordinated work with the Polish colleagues under the guidance of Prof. Kostrowicki. The mapping of land utilization and the study of agrarian systems is being co-ordinated in our country within the framework of a special commission at the Association of Geographical Societies of Yugoslavia. The work itself is helped by the collaboration on the part of the Chairs of Geography of the faculties together with the students. The results achieved in our work so far call for a co-ordination of the activities of all Yugoslav geographers: consequently we are having in Slovenia from June 11 to June 13 a federal symposium at which a comprehensive programme for systematic mapping of the typical regions of Yugoslavia as well as a unified methodology (related to the international methods) are to be prepared.

The heterogeneousness of the natural conditions and the big differen-

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2) Ilešič S., L'état actuel et les problèmes des recherches sur l'utilisation du sol en Yougoslavie, and Crkvenčič I., "Land Use Mapping under Yugoslav Conditions": Land Utilization, Methods and Problems of Research, Polish Academy of Science, Institute of Geography, Geographical Studies No. 31, Warszawa 1962.



ces in the economic development in the individual regions of Yugoslavia, such as have been inherited from the pre-war Yugoslavia, exercise a decisive influence over the way and the systems of utilitations of land. For that reason it has been considered imperative that we should take into consideration the valuable experience of the agrarian geographers from the middle-european countries when preparing the methods of research that would be adequate to our social and natural conditions. The work on the terrain, the work with questionnaires, and mapping have all been backed to a considerable degree by the valuable experience of the Polish colleagues headed by Prof. Kostrowicki; the genetic-social aspects have been taken over from the Munich school directed by Prof. Hartke. We have also found valuable the technical literature of Prof. Enyedi from Hungary and of Prof. Rubitschek from Eastern Germany.

The Institute of Geography at the University of Ljubljana is very intensively investigating beside demogeographic problems the agrarian-geographical problems, the social problems of the village and the agrarian utilization of land. Systematic work has only just been started. This is why it is as yet impossible to give any final picture of the ways of land utilization, of agrarian production, and of agrarian systems for the whole of Yugoslavia, Slovenia or for any wider region, but only for much smaller regions. Our report is thus restricted to specimens of investigation of the agrarian-mountainous Mežiška dolina (the Alps - the Karawanke)<sup>1)</sup> and the vine-growing eastern Slovenske gorice (sub-Pannonian hill-land)<sup>2)</sup>. The characteristic which both regions had in common was the predominance of farming economy which is only very slightly relying on income from outside farming but is already more or less subject to modernisation and rationalization. Another of their features is mingling of the private ways of farming economy with the socialist type of economy with the socialist type of economy. In Slovenske gorice the socialist type of economy is making its way in the vineyards; in the Alpine territory in the forest areas. In order

- 1) Jakob Medved, The Social-Geographical Development of Mežiška dolina during the Last Hundred Years (unpublished dissertation)
- 2) Borut Belec, The Agrarian Geography of Ljutomerske gorice (dissertation)

to give a better demonstration of the difference in the ways of utilization of land and of the agrarian systems within the same region (which is due to the different microgeographical, socio-economic factors), we present a discussion of Mežiška dolina and of two settlements in the vine-growing Slovenske gorice. In both region we have chosen first one village, where owing to the less favourable natural and social conditions the old poly-crop way of production within the framework of private land-ownership persists (Strojno in the Alpine region, and Runeč in the vine-growing Slovenske gorice) and two villages with specialised and rather socialised farming production (Koprivna in the Alpine region, and Nunska graba in Slovenske gorice).

The relief in Mežiška dolina shows on the impermeable rocky stones from Paleozoic and from Tertiary light and unsharp forms which are covered with a thicker layer of soil as well as on the lime-stones from Mesozoic steeper forms covered with a thinner layer of soil, which all owing to the varying degree of dissection, of exposition and of altitude as well as owing to the different socio-historical development offer varying conditions for utilization in farming.

STROJNA comprises a sizable complex of the mountaineous world on the impermeable rockstones of unsharp relief forms with numerous levels of flatter surface which offer particularly on the sunny sides favourable conditions for farming. The territory is populated in the form of solitary little farms distributed in terraces. Owing to the big distance from the non-agrarian economic centres and since the territory lies relatively high above sea-level (1000 meters), the modern forms of rural economy are making here rather smaller progress than elsewhere in Slovenia and this is also the reason why the old forms of poly-crop economy have been retained. The influence of industrialization and of the modern social economic development can be traced above all in the depopulation; the young labour has emigrated, the percentage of active rural population being only 20 %. Only half of the fields are being tilled, the rest of them are being used as extensive meadows neither manured nor sown with grass. Stock-raising during the last twenty years is also on the decline, for about 30 %. A four-year rotation system is predominating:

first year-crops requiring hilling; second year-wheat, third year - rye, fourth year - oats. On farming surfaces the percentage of food crops amounts to 25 % of corn units of the total vegetation production. Among the food crops rye, potatoes, and wheat predominate in approximately the same percentage; 80 % of fodder crops come from the meadows and pastures, the remaining 20 % are yielded by barley, oats, beetroot grown in the fields. Vegetation production is very low, it amounts only to 8.3 corn units per ha., for food crop 13.4 corn units and for fodder crops 7.2 corn units.

The raising of stock is not specialized. Almost three thirds of the total worth of stock in terms of animal units constitutes cattle. With cattle according to the worth (in animal units) half of it are cows, the rest oxen or young animals. One fourth of animal units comes from horses and swine; poultry is very limited in number. The raising of stock represents within the framework of the total agrarian economy a leading economic branch, and it also strongly backs agriculture by such means as manure, animal work in the fields and in transport. Vegetation production per person of the agrarian population amounts to 16.1 corn units and to 1.078 animal units; and per person of the active agrarian population 84.2 corn units and 5.54 animal units.

KOPRIVNA A totally different picture of land utilization and of agrarian economy is shown by Koprivna, which lies in the southern part of the valley in the more strongly dissected relief on the rocky stones from Paleozoic and on the metamorphic stones. This territory is characterized by its position high above sea-level; most of the households being situated more than 1000 meter above sea-level. The layers of soil are comparatively thick, but because of considerable quantities of rain and snow (1452 millimeters) as well as to the shadowy positions the soil is of inferior quality with frequent symptoms of marsh-land. Owing to the not so good natural conditions along the upper line of settlements more of land was necessary in the past to provide living for the family - hence big land-ownership is in predominance - on the average 85 ha - whereas in Strojna, where the natural conditions are better the

same figure is 22 ha. As long as the farming economy relied on stock raising and agriculture, no essential difference existed as regards the economic strength between a big farm in Koprivna and a medium-sized one in Strojna. With the raise of the price of wood or timber there started to appear considerable differences in the transformation of the land in respects of agrarian land utilization and of agrarian systems. Strojna has owing to the smaller land-ownership and to the lack of forest remained at the poly-crop system of economy the influence of the general social and economic development is seen only in the depopulation and in the abandoning of the intensive land utilization. The agrarian economy in Koprivna, however, was quick to transform itself into forestry, which is reflected in the growth of the forest areas. The main branches of economy are forestry and stock-raising. Only 25 % of the fields are being cultivated. The two chief food crops are rye and potatoes, other crops are practically no longer grown. The food crops give comparatively good yields, as they are owing to the plenty of stock amply manured, but the meadows and pastures are not manured. The percentage of food crops is 7.5 % of the total vegetation production; 96 % of fodder crops are grown on the meadows and pastures. With stock-raising, the breeding of cattle is of chief importance, the production of milk is here also duly emphasized. The breeding of horses is owing to the transport of wood also of considerable importance; other kinds of domestic animals are kept only for immediate use at home. The vegetation production per ha of farming surface is 3.2 corn units with food crops 13.4 corn units and with fodder crops 3 corn units. Per person of the agrarian population there come; of the vegetation production 61.1 corn units, and 4.9 animal units. Per person of the active agrarian population 94.7 corn units and 6.34 animal units.

RUNEČ In Slovenske gorice the system of the farming economy and the utilization of land are decisively influenced by growing of vineyards and orchards. The settlement of Runeč lies in the western Ljutomerske ormoške gorice, 280 - 320 meters above sea-level. It lies in a hill-land with unsharp relief forms, with mild slopes, covered with a thick layer of sandy soil or clay. In this territory the growing of vineyards has in recent times because of the less steep

slopes and consequently smaller isolation with the advance of the more rational forms of economy declined, which is also accounted for by the commercial competition with the neighbouring regions with more favourable relief.

In recent years the extent of the vineyard surfaces has been decreased by half, whereas the fields and the meadows have expanded considerably. The worth of food crops and of fodder crops is fairly equalized (74 %: 53 %). With food crops the best yields come from potatoes, wheat and rye, which suggest that the production is orientated towards meeting domestic requirements. An orientation towards the production of goods for sale is suggested by the growing of fruit, which gives one fifth of the production of food crops. In contrast to the Alpine regions it is only a small percentage of the fodder crops production that is constituted by meadows and pastures; on the contrary the participation of clover and maize is characteristically high. The long vegetation period, particularly warm autumns, make it possible to grow crops on stubblefields. On the whole the four-year rotation is the rule: first year crops requiring hilling, second year wheat, third year rye or barley and fourth year clover. In stock raising the breeding of cattle is most important, the production of milk being here the growing feature. A high percentage of swine is characteristic as well. Poultry is likewise significant. The vegetation production per ha of farming surface amounts to 26.2 corn units. Vegetation production per person of the agrarian population comes to 11.2 corn units, and 0.6 animal units. With reference to the active agrarian population the same figures per person are 25.5 corn units and 1.12 animal units.

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In the Alpine region, where extensive growing of fodder on meadows and pastures is predominant, the vegetation production and the number of stock per ha of farming land remains extremely low, whereas per person of the agrarian population it reaches owing to the this population a very high figure; however, in the vine-growing parts the situation is reverse.



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Other categories	80	2.7	11	1.5	3.5	1.8	5	4
TOTAL:	2975	100	742	100	192.5	100	124	100

cultivated fields in per cent	24	53.9	100	100
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PRODUCTION: food crops give following percentage of total production on farming surfaces (in corn units)	7.5	25.2	46.9	69.4
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Within the scope of food crops (in per cent of corn units) the following crops give

wheat	8.9 %	26.0 %	29.0 %	39.1 %
rye	38.8 %	36.6 %	13.9 %	-
potatoes	50.0 %	26.6 %	33.0 %	27.8 %
fruit	-	5.0 %	20.5 %	27.7 %
other crops	2.3 %	5.8 %	3.6 %	5.4 %

Of fodder crops (in per cent of corn units) farming surfaces give the following yields

	92.5 %	74.8	53.1	30.6
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Within the scope of fodder crops the figures for the yields in per cent of corn units are:

barley	-	4.8	2.1	-
oats	3.5	8.5	1.3	-
clover	0.6	3.0	24.7	-
other fodder crops	0.1	3.7	13.5	19.0
meadows	74.0	74.0	18.1	20.2
pastures	21.8	6.0	4.7	3.9
maize	-	-	35.6	56.9

	KOPRIVNA	STROJNA	RUNEČ	NUNSKA GRABA
Vegetation production in corn units per ha of farming surface				
a) food crops	13.4	13.4	30.2	23.9
b) fodder crops	3.0	7.2	22.2	21.1
c) together	3.2	8.13	26.2	23.0
Vegetation production in corn units per person of agrarian population				
a) food crops	4.6	4.1	5.2	3.5
b) fodder crops	56.5	12.0	6.0	1.5
c) together	61.1	16.1	11.2	5.0
Vegetation production in corn units per person of active agrarian population				
	94.7	84.2	25.5	14.2
Structure of stock in animal units Percentage of animal units according to the kinds of animals:				
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Cattle	67.3	69.3	66.8	72.6
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Sheep, Goats, etc.	4.4	3.7	0.4	-
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The percentage of cows expressed in animal units taken from the total number of cattle				
	54.6	50.8	75.0	82.0
Number of animal units per ha of farming surface				
	0.218	0.557	1.15	1.213
Number of animal units per person of agrarian population				
	4.9	1.078	0.6	0.417
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THE MAPPING OF LAND UTILIZATION AND THE STUDY OF AGRARIAN STRUCTURES AND SYSTEMS IN YUGOSLAVIA

by Vladimir Klemenčič, Ljubljana, and Ivo Crkvenčič, Zagreb

The post-war social and economic development of Yugoslavia is characterized by quick industrialization and socialization of the agrarian production. This development is reflected in the quick changes in the economic structure of the population, in the changes in the agrarian structure and in the changes in the ways of utilizing land in agrarian as well as in non-agrarian regions. Since 1953 the number of active rural population has decreased by ca 500.000 people. The secondary and the tertiary sectors of the economic activities has been taking up not only the natural increase of the adult population but also a large number of the agrarian population.

Decline of the percentage of population active in agrarian production

Table No. 1<sup>(+)</sup>

Year	SFRJ	Bosnia								
		Serbia	Croatia	Slovenia	Hercegov.	Macedonia	Montenegro			
1948	70.6	74.5 <sup>+</sup>	66.2 <sup>+</sup>	49.0 <sup>+</sup>	21.6 <sup>+</sup>	77.3 <sup>+</sup>	71.7 <sup>+</sup>	1.76.0 <sup>+</sup>	5.4 <sup>+</sup>	
1953	60.9	67.4 <sup>+</sup>	57.3 <sup>+</sup>	43.0 <sup>+</sup>	17.9 <sup>+</sup>	63.6 <sup>+</sup>	65.2 <sup>+</sup>	4.3 <sup>+</sup>	58.8 <sup>+</sup>	2.1 <sup>+</sup>
1961	59.1	59.1 <sup>+</sup>	45.2 <sup>+</sup>	31.5 <sup>+</sup>	20.2 <sup>+</sup>	54.7 <sup>+</sup>	55.7 <sup>+</sup>	4.0 <sup>+</sup>	46.6 <sup>+</sup>	5.1 <sup>+</sup>

We can follow a process of a very quick destratification of the village population, which starts on the one hand a process of emigration of the recent agrarian population into towns, or - on the other hand, very characteristic of Yugoslavia - the farming population changes its occupations, remains at its village homes but starts to travel daily to work in the nearby or comparatively far-off economic

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centres. The changes in the occupational stratification of the village is due to the unprofitableness of the peasant households, which predominate in Yugoslavia, and to the need for more labour in the rapidly developing non-agrarian economic branches, which make from one period to another more posts available. Nowadays a double job of the members of peasant households is a regular thing in Yugoslavia, and it is precisely this economic relation between income from non-agrarian occupation and from the land that decisively influences the way of land utilization and the agrarian economy. With the raise of the income and of the professional qualification of the members of peasant households falls their dependence on the income from the land and consequently the higher qualifications and the corresponding raise in the income of the members of peasant households in non-agrarian occupations results in a decline in the intensiveness of land utilization. This process shows a higher percentage in flat surface areas with strong industrial centres. Within the sphere of industrialized centres we find now, owing to the changes in the qualifications of the members of the peasant households and owing to the declining interest for the intensive cultivation of land, ripe conditions for socialization: in such places big specialized farming firms have been started under the name of "agrokombinati".

Processes of this kind, which are all characterized by elements of demogeographic and economic nature, have made it possible to distinguish as regards the degree of intensiveness of land utilization between four types of regions:

- a) Regions in the neighbourhood of towns in flat-surface areas, where a specialized production within the framework of the socialist sector is being formed (agrokombinati).
- b) The wider neighbourhood of the industrial centres with less favourable conditions for arrodation and for modern farming production, where the land is in the hands of members of peasant households with double income. The poly-crop production is being readily abandoned and a reorientation towards certain specialized economic branches is taking place in the prospect of selling the products on the markets.

- c) The predominantly agrarian regions in the mountainous parts, in the Karst and in the peripnereal parts of the sub-Pannonian territory, where no favourable conditions for the modern specialised farming exist, because the population is emigrating for good and because the intensiveness of land utilization is in the decline.
- d) Regions with favourable natural conditions for farming but distant from the industrial centres, which are owing to the specific conditions orientating themselves towards one branch (cultivation of vineyards, fruit-growing, industrial crops, forestry), the production is in the hands of the socialist sector either in the form of "agrokombinati" or in the form of co-operation.

On the basis of the results achieved in the investigations of similar kinds by the older geographers (Melik, Ilešič)<sup>2</sup> the Institute of Geography at the University of Ljubljana has started in the last two years a systematic research in some specimens of places that can be classified in the above mentioned types of regions. This work has gained in its intensity with the beginning of the co-ordinated work with the Polish colleagues under the guidance of Prof. Kostrowicki. The mapping of land utilization and the study of agrarian systems is being co-ordinated in our country within the framework of a special commission at the Association of Geographical Societies of Yugoslavia. The work itself is helped by the collaboration on the part of the Chairs of Geography of the faculties together with the students. The results achieved in our work so far call for a co-ordination of the activities of all Yugoslav geographers: consequently we are having in Slovenia from June 11 to June 13 a federal symposium at which a comprehensive programme for systematic mapping of the typical regions of Yugoslavia as well as a unified methodology (related to the international methods) are to be prepared.

The heterogeneousness of the natural conditions and the big differen-

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2) Ilešič S., L'état actuel et les problèmes des recherches sur l'utilisation du sol en Yougoslavie, and Crkvenčič I., "Land Use Mapping under Yugoslav Conditions": Land Utilization, Methods and Problems of Research, Polish Academy of Science, Institute of Geography, Geographical Studies No. 31, Warszawa 1962.

ces in the economic development in the individual regions of Yugoslavia, such as have been inherited from the pre-war Yugoslavia, exercise a decisive influence over the way and the systems of utilitations of land. For that reason it has been considered imperative that we should take into consideration the valuable experience of the agrarian geographers from the middle-european countries when preparing the methods of research that would be adequate to our social and natural conditions. The work on the terrain, the work with questionnaires, and mapping have all been backed to a considerable degree by the valuable experience of the Polish colleagues headed by Prof. Kostrowicki; the genetic-social aspects have been taken over from the Munich school directed by Prof. Hartke. We have also found valuable the technical literature of Prof. Rnyedi from Hungary and of Prof. Rubitschek from Eastern Germany.

The Institute of Geography at the University of Ljubljana is very intensively investigating beside demogeographic problems the agrarian-geographical problems, the social problems of the village and the agrarian utilization of land. Systematic work has only just been started. This is why it is as yet impossible to give any final picture of the ways of land utilization, of agrarian production, and of agrarian systems for the whole of Yugoslavia, Slovenia or for any wider region, but only for much smaller regions. Our report is thus restricted to specimens of investigation of the agrarian-mountainous Mežiška dolina (the Alpe - the Karawanke)<sup>1)</sup> and the vine-growing eastern Slovenske gorice (sub-Pannonian hill-land)<sup>2)</sup>. The characteristic which both regions had in common was the predominance of farming economy which is only very slightly relying on income from outside farming but is already more or less subject to modernisation and rationalization. Another of their features is mingling of the private ways of farming economy with the socialist type of economy with the socialist type of economy. In Slovenske gorice the socialist type of economy is making its way in the vineyards; in the Alpine territory in the forest areas. In order

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- 1) Jakob Medved, The Social-Geographical Development of Mežiška dolina during the Last Hundred Years (unpublished dissertation)
  - 2) Borut Belec, The Agrarian Geography of Ljutomerske gorice (dissertation)

to give a better demonstration of the difference in the ways of utilization of land and of the agrarian systems within the same region (which is due to the different microgeographical, socio-economic factors), we present a discussion of Mežiška dolina and of two settlements in the vine-growing Slovenske gorice. In both region we have chosen first one village, where owing to the less favourable natural and social conditions the old poly-crop way of production within the framework of private land-ownership persists (Strojno in the Alpine region, and Rumeč in the vine-growing Slovenske gorice) and two villages with specialised and rather socialised farming production (Koprivna in the Alpine region, and Nunska graba in Slovenske gorice).

The relief in Mežiška dolina shows on the impermeable rocky stones from Paleozoic and from Tertiary light and unsharp forms which are covered with a thicker layer of soil as well as on the lime-stones from Mesozoic steeper forms covered with a thinner layer of soil, which all owing to the varying degree of dissection, of exposition and of altitude as well as owing to the different socio-historical development offer varying conditions for utilization in farming.

STROJNA comprises a sizable complex of the mountaineous world on the impermeable rockstones of unsharp relief forms with numerous levels of flatter surface which offer particularly on the sunny sides favourable conditions for farming. The territory is populated in the form of solitary little farms distributed in terraces. Owing to the big distance from the non-agrarian economic centres and since the territory lies relatively high above sea-level (1000 meters), the modern forms of rural economy are making here rather smaller progress than elsewhere in Slovenia and this is also the reason why the old forms of poly-crop economy have been retained. The influence of industrialization and of the modern social economic development can be traced above all in the depopulation; the young labour has emigrated, the percentage of active rural population being only 20 %. Only half of the fields are being tilled, the rest of them are being used as extensive meadows neither manured nor sown with grass. Stock-raising during the last twenty years is also on the decline, for about 30 %. A four-year rotation system is predominating:

first year-crops requiring hilling; second year-wheat, third year - rye, fourth year - oats. On farming surfaces the percentage of food crops amounts to 25 % of corn units of the total vegetation production. Among the food crops rye, potatoes, and wheat predominate in approximately the same percentage; 80 % of fodder crops come from the meadows and pastures, the remaining 20 % are yielded by barley, oats, beetroot grown in the fields. Vegetation production is very low, it amounts only to 8.3 corn units per ha., for food crops 13.4 corn units and for fodder crops 7.2 corn units.

The raising of stock is not specialized. Almost three thirds of the total worth of stock in terms of animal units constitutes cattle. With cattle according to the worth (in animal units) half of it are cows, the rest oxen or young animals. One fourth of animal units comes from horses and swine; poultry is very limited in number. The raising of stock represents within the framework of the total agrarian economy a leading economic branch, and it also strongly backs agriculture by such means as manure, animal work in the fields and in transport. Vegetation production per person of the agrarian population amounts to 16.1 corn units and to 1.078 animal units; and per person of the active agrarian population 84.2 corn units and 5.54 animal units.

KOPRIVNA A totally different picture of land utilization and of agrarian economy is shown by Koprivna, which lies in the southern part of the valley in the more strongly dissected relief on the rocky stones from Paleozoic and on the metamorphic stones. This territory is characterized by its position high above sea-level; most of the households being situated more than 1000 meter above sea-level. The layers of soil are comparatively thick, but because of considerable quantities of rain and snow (1452 millimeters) as well as to the shadowy positions the soil is of inferior quality with frequent symptoms of marsh-land. Owing to the not so good natural conditions along the upper line of settlements more of land was necessary in the past to provide living for the family - hence big land-ownership is in predominance - on the average 85 ha - whereas in Strojna, where the natural conditions are better the



same figure is 22 ha. As long as the farming economy relied on stock raising and agriculture, no essential difference existed as regards the economic strength between a big farm in Koprivna and a medium-sized one in Strojna. With the raise of the price of wood or timber there started to appear considerable differences in the transformation of the land in respects of agrarian land utilization and of agrarian systems. Strojna has owing to the smaller land-ownership and to the lack of forest remained at the poly-crop system of economy the influence of the general social and economic development is seen only in the depopulation and in the abandoning of the intensive land utilization. The agrarian economy in Koprivna, however, was quick to transform itself into forestry, which is reflected in the growth of the forest areas. The main branches of economy are forestry and stock-raising. Only 25 % of the fields are being cultivated. The two chief food crops are rye and potatoes, other crops are practically no longer grown. The food crops give comparatively good yields, as they are owing to the plenty of stock amply manured, but the meadows and pastures are not manured. The percentage of food crops is 7.5 % of the total vegetation production; 96 % of fodder crops are grown on the meadows and pastures. With stock-raising, the breeding of cattle is of chief importance, the production of milk is here also duly emphasized. The breeding of horses is owing to the transport of wood also of considerable importance; other kinds of domestic animals are kept only for immediate use at home. The vegetation production per ha of farming surface is 3.2 corn units with food crops 13.4 corn units and with fodder crops 3 corn units. Per person of the agrarian population there come; of the vegetation production 61.1 corn units, and 4.9 animal units. Per person of the active agrarian population 94.7 corn units and 6.34 animal units.

RUNEČ In Slovenske gorice the system of the farming economy and the utilization of land are decisively influenced by growing of vineyards and orchards. The settlement of Runeč lies in the western Ljutomerske ormoške gorice, 280 - 320 meters above sea-level. It lies in a hill-land with unsharp relief forms, with mild slopes, covered with a thick layer of sandy soil or clay. In this territory the growing of vineyards has in recent times because of the less steep

slopes and consequently smaller isolation with the advance of the more rational forms of economy declined, which is also accounted for by the commercial competition with the neighbouring regions with more favourable relief.

In recent years the extent of the vineyard surfaces has been decreased by half, whereas the fields and the meadows have expanded considerably. The worth of food crops and of fodder crops is fairly equalized (74 %: 53 %). With food crops the best yields come from potatoes, wheat and rye, which suggest that the production is orientated towards meeting domestic requirements. An orientation towards the production of goods for sale is suggested by the growing of fruit, which gives one fifth of the production of food crops. In contrast to the Alpine regions it is only a small percentage of the fodder crops production that is constituted by meadows and pastures; on the contrary the participation of clover and maize is characteristically high. The long vegetation period, particularly warm autumns, make it possible to grow crops on stubble-fields. On the whole the four-year rotation is the rule: first year crops requiring hilling, second year wheat, third year rye or barley and fourth year clover. In stock raising the breeding of cattle is most important, the production of milk being here the growing feature. A high percentage of swine is characteristic as well. Poultry is likewise significant. The vegetation production per ha of farmling surface amounts to 26.2 corn units. Vegetation production per person of the agrarian population comes to 11.2 corn units, and 0.6 animal units. With reference to the active agrarian population the same figures per person are 25.5 corn units and 1.12 animal units.

NUHNSKA GRABA is a vine-growing territory in the oblong valley with relatively steep slopes. Microclimatic conditions are on these slopes extraordinarily favourable for the growing of vine, precipitations come to 990 millimeters, the average June temperature is 20°C. The temperature sum of the vegetation period never sinks below 3000°C. The chief climatic handicaps are hail and frost, which are rare. Until World War II most of the land was owned by

townsmen from Austria (Radgona, Graz), whose high quality vineyards were being cultivated by the local skilled labour. With the nationalization and the abolishment of former relationships 70 % of the vineyard surfaces has passed into the possession of the social sector. Almost all vineyard surfaces have been re-arranged into terraces, where a mechanized way of cultivation is now established. Areas that are not significant for vine-growing have remained in the hand of private ownership, they are run economically by private farmer-peasants or by the workes from the "agrokombinati". The production of food and of fodder crops as well as the role of stock raising is similar to that in Rumeč. Private vineyards are under continuous retrogression, several of them are in the phase of decay and they are being changed into meadows or sometimes fields. By re-arranging the vineyards in a modern terrace system and by improving the qualities of vines the production of vineyards has been raised from the approximate 18 corn units per ha (such as it still persists in the unmodernized private vineyards) to 50 corn units per ha.

The region under the present discussion shows marked differences as regards the total effects of the natural conditions and their significance for the social and demogeographic development of the country. In the period of autarkic economy, when farming represented the only source of living for the farming household, no essential differences existed between the economic power of a bigger farm in Koprivna, a medium-sized one in Strojna and a small one in Slovenske gorice as the natural conditions in the Alps were less favourable and in Slovenske gorice more favourable. With the growing prices of wood the bigger or the smaller forest-ownership made for a strong differentiation and was quick to raise the worth of the bigger farms with wood even in the less favourable natural conditions. The introduction of modern agrotechnique has been causing in the recent times a change in the respective values of the relief surfaces and accordingly a change in the way of land utilization. That is in the Alpine regions reflected in the abandoning of fields which are being changed into meadows, pastures and forest, whereas in the vine-growing parts with better climatic conditions terraces are being arranged which makes it possible

to use machines. Where the natural conditions for vineyards are not good, the vineyards are getting changed into orchards, fields or meadows.

Regions with particularly favourable natural conditions for the growing of individual crops have underwent great changes in the structure of land ownership and with the utilization of land as related to it. In such regions private land had been readily passing until the World War II into the hands of foreign farmers. With the nationalization of those areas after the War we get in Koprivna a big industrial forestry firm, and in Munska graba a modern socialist vine-growing "kombinat". Both are characterized by the fact that the intensive utilization of land brings a rapid increase in the production.

The influence of introducing modern technology in farming has caused a rapid retrogression of farming in the regions with less favourable relief conditions and an economic re-orientation of those regions. As to the different climatic conditions, the structure of land ownership and the bigger or smaller influence of industrialization these regions are changing in the intensiveness in the utilization of land and in their economies in various directions. In Koprivna, where bigger property and less favourable natural conditions predominate, the farmers are quickly taking up stock raising and forestry. Of the food crops they grow intensively on small areas potatoes and rye, all the rest of the farming surfaces is left for an extensive acquisition of fodder for the raising of stock. The rotation on the fields has been stopped, the potatoes and rye are grown only in fields with most favourable relief conditions and are regularly well manured. In Strojna the old way of economy has been preserved in spite of the decrease in the number of labour hands, but it is still orientated for self-provision. In the Alpine region, where the extensive growing of fodder for stock predominates in the meadows and pastures and where the vegetation production yields, expressed in corn units and the number of stock in animal units, are per person of the agrarian population considerably higher than in Slovenske gorice, where the production of

fodder and food crops is concentrated on small surfaces of land.

In the Alpine region, where extensive growing of fodder on meadows and pastures is predominant, the vegetation production and the number of stock per ha of farming land remains extremely low, whereas per person of the agrarian population it reaches owing to the this population a very high figure; however, in the vine-growing parts the situation is reverse.

TABLE OF SURVEY

Categories of land	KOPRIVNA		STROJNA		RUHEČ		MUHNSKA GRABA	
	ha	%	ha	%	ha	%	ha	%
Fields gardens	119	4	140	18.8	53.6	27.8	22	17.7
Meadows	149	5	94	12.7	9.5	4.9	3	2.4
Orchards	-	-	-	-	6.6	3.4	22	17.7
Vineyards	-	-	-	-	28.7	15	52	42
Pastures	634	21.3	70	9.5	22	11.4	9	7.2
Forest	1993	67	427	57.5	68.6	35.7	11	9
Other categories	80	2.7	11	1.5	3.5	1.8	5	4
TOTAL:	2975	100	742	100	192.5	100	124	100

cultivated fields in per cent	24	53.9	100	100
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PRODUCTION; food crops give following per- centage of total produc- tion on farming surfaces (in corn units)	7.5	25.2	46.9	69.4
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Within the scope of food crops (in per cent of corn units)  
the following crops give

wheat	8.9 %	26.0 %	29.0 %	39.1 %
rye	38.8 %	36.6 %	13.9 %	-
potatoes	50.0 %	26.6 %	33.0 %	27.8 %
fruit	-	5.0 %	20.5 %	27.7 %
other crops	2.3 %	5.8 %	3.6 %	5.4 %

Of fodder crops (in per cent of corn units)  
farming surfaces give the following yields

	92.5 %	74.8	53.1	30.6
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Within the scope of fodder crops the  
figures for the yields in per cent of  
corn units are:

barley	-	4.8	2.1	-
oats	3.5	8.5	1.3	-
clover	0.6	3.0	24.7	-
other fodder crops	0.1	3.7	13.5	19.0
meadows	74.0	74.0	18.1	20.2
pastures	21.8	6.0	4.7	3.9
maize	-	-	35.6	56.9

	KOPRIVNA	STROJNA	RUNEČ	NUNSKA GRABA
Vegetation production in corn units per ha of farming surface				
a) food crops	13.4	13.4	30.2	23.9
b) fodder crops	3.0	7.2	22.2	21.1
c) together	3.2	8.3	26.2	23.0
Vegetation production in corn units per person of agrarian population				
a) food crops	4.6	4.1	5.2	3.5
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Decline of the percentage of population active in agrarian production

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1948	70.6	74.5	66.2	49.0	77.3	71.7	76.0
1953	60.9	67.4	57.3	43.0	63.6	65.2	58.8
1961	59.1	59.1	45.2	31.5	54.7	55.7	46.6

We can follow a process of a very quick destratification of the village population, which starts on the one hand a process of emigration of the recent agrarian population into towns, or - on the other hand, very characteristic of Yugoslavia - the farming population changes its occupations, remains at its village homes but starts to travel daily to work in the nearby or comparatively far-off economic

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- c) The predominantly agrarian regions in the mountainous parts, in the Karst and in the peripheral parts of the sub-Pannonian territory, where no favourable conditions for the modern specialised farming exist, because the population is emigrating for good and because the intensiveness of land utilization is in the decline.
- d) Regions with favourable natural conditions for farming but distant from the industrial centres, which are owing to the specific conditions orientating themselves towards one branch (cultivation of vineyards, fruit-growing, industrial crops, forestry), the production is in the hands of the socialist sector either in the form of "agrokombinati" or in the form of co-operation.

On the basis of the results achieved in the investigations of similar kinds by the older geographers (Melik, Ilešič)<sup>2</sup> the Institute of Geography at the University of Ljubljana has started in the last two years a systematic research in some specimens of places that can be classified in the above mentioned types of regions. This work has gained in its intensity with the beginning of the co-ordinated work with the Polish colleagues under the guidance of Prof. Kostrowicki. The mapping of land utilization and the study of agrarian systems is being co-ordinated in our country within the framework of a special commission at the Association of Geographical Societies of Yugoslavia. The work itself is helped by the collaboration on the part of the Chairs of Geography of the faculties together with the students. The results achieved in our work so far call for a co-ordination of the activities of all Yugoslav geographers: consequently we are having in Slovenia from June 11 to June 13 a federal symposium at which a comprehensive programme for systematic mapping of the typical regions of Yugoslavia as well as a unified methodology (related to the international methods) are to be prepared.

The heterogeneity of the natural conditions and the big differences

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2) Ilešič S., L'état actuel et les problèmes des recherches sur l'utilisation du sol en Yougoslavie, and Crkvenčič I., "Land Use Mapping under Yugoslav Conditions": Land Utilization, Methods and Problems of Research, Polish Academy of Science, Institute of Geography, Geographical Studies No. 31, Warszawa 1962.

ces in the economic development in the individual regions of Yugoslavia, such as have been inherited from the pre-war Yugoslavia, exercise a decisive influence over the way and the systems of utilitations of land. For that reason it has been considered imperative that we should take into consideration the valuable experience of the agrarian geographers from the middle-european countries when preparing the methods of research that would be adequate to our social and natural conditions. The work on the terrain, the work with questionnaires, and mapping have all been backed to a considerable degree by the valuable experience of the Polish colleagues headed by Prof. Kostrowicki; the genetic-social aspects have been taken over from the Munich school directed by Prof. Hartke. We have also found valuable the technical literature of Prof. Enyedi from Hungary and of Prof. Rubitschek from Eastern Germany.

The Institute of Geography at the University of Ljubljana is very intensively investigating beside demogeographic problems the agrarian-geographical problems, the social problems of the village and the agrarian utilization of land. Systematic work has only just been started. This is why it is as yet impossible to give any final picture of the ways of land utilization, of agrarian production, and of agrarian systems for the whole of Yugoslavia, Slovenia or for any wider region, but only for much smaller regions. Our report is thus restricted to specimens of investigation of the agrarian-mountainous Mežiška dolina (the Alps - the Karawanke)<sup>1)</sup> and the vine-growing eastern Slovenske gorice (sub-Pannonian hill-land)<sup>2)</sup>. The characteristic which both regions had in common was the predominance of farming economy which is only very slightly relying on income from outside farming but is already more or less subject to modernisation and rationalization. Another of their features is mingling of the private ways of farming economy with the socialist type of economy with the socialist type of economy. In Slovenske gorice the socialist type of economy is making its way in the vineyards; in the Alpine territory in the forest areas. In order

- 1) Jakob Medved, The Social-Geographical Development of Mežiška dolina during the Last Hundred Years (unpublished dissertation)
- 2) Borut Belec, The Agrarian Geography of Ljutomerske gorice (dissertation)

to give a better demonstration of the difference in the ways of utilization of land and of the agrarian systems within the same region (which is due to the different microgeographical, socio-economic factors), we present a discussion of Mežiška dolina and of two settlements in the vine-growing Slovenske gorice. In both region we have chosen first one village, where owing to the less favourable natural and social conditions the old poly-crop way of production within the framework of private land-ownership persists (Strojno in the Alpine region, and Runeč in the vine-growing Slovenske gorice) and two villages with specialised and rather socialised farming production (Koprivna in the Alpine region, and Nunska graba in Slovenske gorice).

The relief in Mežiška dolina shows on the impermeable rocky stones from Paleozoic and from Tertiary light and unsharp forms which are covered with a thicker layer of soil as well as on the lime-stones from Mesozoic steeper forms covered with a thinner layer of soil, which all owing to the varying degree of dissection, of exposition and of altitude as well as owing to the different socio-historical development offer varying conditions for utilization in farming.

STROJNA comprises a sizable complex of the mountaineous world on the impermeable rockstones of unsharp relief forms with numerous levels of flatter surface which offer particularly on the sunny sides favourable conditions for farming. The territory is populated in the form of solitary little farms distributed in terraces. Owing to the big distance from the non-agrarian economic centres and since the territory lies relatively high above sea-level (1000 meters), the modern forms of rural economy are making here rather smaller progress than elsewhere in Slovenia and this is also the reason why the old forms of poly-crop economy have been retained. The influence of industrialization and of the modern social economic development can be traced above all in the depopulation; the young labour has emigrated, the percentage of active rural population being only 20 %. Only half of the fields are being tilled, the rest of them are being used as extensive meadows neither manured nor sown with grass. Stock-raising during the last twenty years is also on the decline, for about 30 %. A four-year rotation system is predominating:

first year-crops requiring hilling; second year-wheat, third year - rye, fourth year - oats. On farming surfaces the percentage of food crops amounts to 25 % of corn units of the total vegetation production. Among the food crops rye, potatoes, and wheat predominate in approximately the same percentage; 80 % of fodder crops come from the meadows and pastures, the remaining 20 % are yielded by barley, oats, beetroot grown in the fields. Vegetation production is very low, it amounts only to 8.3 corn units per ha., for food crops 13.4 corn units and for fodder crops 7.2 corn units.

The raising of stock is not specialized. Almost three thirds of the total worth of stock in terms of animal units constitutes cattle. With cattle according to the worth (in animal units) half of it are cows, the rest oxen or young animals. One fourth of animal units comes from horses and swine; poultry is very limited in number. The raising of stock represents within the framework of the total agrarian economy a leading economic branch, and it also strongly backs agriculture by such means as manure, animal work in the fields and in transport. Vegetation production per person of the agrarian population amounts to 16.1 corn units and to 1.078 animal units; and per person of the active agrarian population 84.2 corn units and 5.54 animal units.

KOPRIVNA A totally different picture of land utilization and of agrarian economy is shown by Koprivna, which lies in the southern part of the valley in the more strongly dissected relief on the rocky stones from Paleozoic and on the metamorphic stones. This territory is characterized by its position high above sea-level; most of the households being situated more than 1000 meter above sea-level. The layers of soil are comparatively thick, but because of considerable quantities of rain and snow (1452 millimeters) as well as to the shadowy positions the soil is of inferior quality with frequent symptoms of marsh-land. Owing to the not so good natural conditions along the upper line of settlements more of land was necessary in the past to provide living for the family - hence big land-ownership is in predominance - on the average 85 ha - whereas in Strojna, where the natural conditions are better the

same figure is 22 ha. As long as the farming economy relied on stock raising and agriculture, no essential difference existed as regards the economic strength between a big farm in Koprivna and a medium-sized one in Strojna. With the raise of the price of wood or timber there started to appear considerable differences in the transformation of the land in respects of agrarian land utilization and of agrarian systems. Strojna has owing to the smaller land-ownership and to the lack of forest remained at the poly-crop system of economy the influence of the general social and economic development is seen only in the depopulation and in the abandoning of the intensive land utilization. The agrarian economy in Koprivna, however, was quick to transform itself into forestry, which is reflected in the growth of the forest areas. The main branches of economy are forestry and stock-raising. Only 25 % of the fields are being cultivated. The two chief food crops are rye and potatoes, other crops are practically no longer grown. The food crops give comparatively good yields, as they are owing to the plenty of stock amply manured, but the meadows and pastures are not manured. The percentage of food crops is 7.5 % of the total vegetation production; 96 % of fodder crops are grown on the meadows and pastures. With stock-raising, the breeding of cattle is of chief importance, the production of milk is here also duly emphasized. The breeding of horses is owing to the transport of wood also of considerable importance; other kinds of domestic animals are kept only for immediate use at home. The vegetation production per ha of farming surface is 3.2 corn units with food crops 13.4 corn units and with fodder crops 3 corn units. Per person of the agrarian population there come; of the vegetation production 61.1 corn units, and 4.9 animal units. Per person of the active agrarian population 94.7 corn units and 6.34 animal units.

RUNEČ In Slovenske gorice the system of the farming economy and the utilization of land are decisively influenced by growing of vineyards and orchards. The settlement of Runeč lies in the western Ljutomerske ormoške gorice, 280 - 320 meters above sea-level. It lies in a hill-land with unsharp relief forms, with mild slopes, covered with a thick layer of sandy soil or clay. In this territory the growing of vineyards has in recent times because of the less steep

slopes and consequently smaller isolation with the advance of the more rational forms of economy declined, which is also accounted for by the commercial competition with the neighbouring regions with more favourable relief.

In recent years the extent of the vineyard surfaces has been decreased by half, whereas the fields and the meadows have expanded considerably. The worth of food crops and of fodder crops is fairly equalized (74 %: 53 %). With food crops the best yields come from potatoes, wheat and rye, which suggest that the production is orientated towards meeting domestic requirements. An orientation towards the production of goods for sale is suggested by the growing of fruit, which gives one fifth of the production of food crops. In contrast to the Alpine regions it is only a small percentage of the fodder crops production that is constituted by meadows and pastures; on the contrary the participation of clover and maize is characteristically high. The long vegetation period, particularly warm autumns, make it possible to grow crops on stubblefields. On the whole the four-year rotation is the rule: first year crops requiring hilling, second year wheat, third year rye or barley and fourth year clover. In stock raising the breeding of cattle is most important, the production of milk being here the growing feature. A high percentage of swine is characteristic as well. Poultry is likewise significant. The vegetation production per ha of farming surface amounts to 26.2 corn units. Vegetation production per person of the agrarian population comes to 11.2 corn units, and 0.6 animal units. With reference to the active agrarian population the same figures per person are 25.5 corn units and 1.12 animal units.

NUHKA GRABA is a vine-growing territory in the oblong valley with relatively steep slopes. Microclimatic conditions are on these slopes extraordinarily favourable for the growing of vine, precipitations come to 996 millimeters, the average June temperature is 20°C. The temperature sum of the vegetation period never sinks below 3000°C. The chief climatic handicaps are hail and frost, which are rare. Until World War II most of the land was owned by

townsmen from Austria (Radgona, Graz), whose high quality vineyards were being cultivated by the local skilled labour. With the nationalization and the abolishment of former relationships 70 % of the vineyard surfaces has passed into the possession of the social sector. Almost all vineyard surfaces have been re-arranged into terraces, where a mechanized way of cultivation is now established. Areas that are not significant for vine-growing have remained in the hand of private ownership, they are run economically by private farmer-peasants or by the workers from the "agrokombinati". The production of food and of fodder crops as well as the role of stock raising is similar to that in Haneč. Private vineyards are under continuous retrogression, several of them are in the phase of decay and they are being changed into meadows or sometimes fields. By re-arranging the vineyards in a modern terrace system and by improving the qualities of vines the production of vineyards has been raised from the approximate 18 corn units per ha (such as it still persists in the unmodernized private vineyards) to 50 corn units per ha.

The region under the present discussion shows marked differences as regards the total effects of the natural conditions and their significance for the social and demogeographic development of the country. In the period of autarkic economy, when farming represented the only source of living for the farming household, no essential differences existed between the economic power of a bigger farm in Hoprivna, a medium-sized one in Strojna and a small one in Slovenske gorice as the natural conditions in the Alps were less favourable and in Slovenske gorice more favourable. With the growing prices of wood the bigger or the smaller forest-ownership made for a strong differentiation and was quick to raise the worth of the bigger farms with wood even in the less favourable natural conditions. The introduction of modern agrotechnique has been causing in the recent times a change in the respective values of the relief surfaces and accordingly a change in the way of land utilization. That is in the Alpine regions reflected in the abandoning of fields which are being changed into meadows, pastures and forest, whereas in the vine-growing parts with better climatic conditions terraces are being arranged which makes it possible



to use machines. Where the natural conditions for vineyards are not good, the vineyards are getting changed into orchards, fields or meadows.

Regions with particularly favourable natural conditions for the growing of individual crops have underwent great changes in the structure of land ownership and with the utilization of land as related to it. In such regions private land had been readily passing until the World War II into the hands of foreign farmers. With the nationalization of those areas after the War we get in Koprivna a big industrial forestry firm, and in Munska graba a modern socialist vine-growing "kombinat". Both are characterized by the fact that the intensive utilization of land brings a rapid increase in the production.

The influence of introducing modern technology in farming has caused a rapid retrogression of farming in the regions with less favourable relief conditions and an economic re-orientation of those regions. As to the different climatic conditions, the structure of land ownership and the bigger or smaller influence of industrialization these regions are changing in the intensiveness in the utilization of land and in their economies in various directions. In Koprivna, where bigger property and less favourable natural conditions predominate, the farmers are quickly taking up stock raising and forestry. Of the food crops they grow intensively on small areas potatoes and rye, all the rest of the farming surfaces is left for an extensive acquisition of fodder for the raising of stock. The rotation on the fields has been stopped, the potatoes and rye are grown only in fields with most favourable relief conditions and are regularly well manured. In Strojna the old way of economy has been preserved in spite of the decrease in the number of labour hands, but it is still orientated for self-provision. In the Alpine region, where the extensive growing of fodder for stock predominates in the meadows and pastures and where the vegetation production yields, expressed in corn units and the number of stock in animal units, are per person of the agrarian population considerably higher than in Slovenske gorice, where the production of

fodder and food crops is concentrated on small surfaces of land.

In the Alpine region, where extensive growing of fodder on meadows and pastures is predominant, the vegetation production and the number of stock per ha of farming land remains extremely low, whereas per person of the agrarian population it reaches owing to the this population a very high figure; however, in the vine-growing parts the situation is reverse.

TABLE OF SURVEY

Categories of land	KOPRIVNA		STROJNA		KUNEC		MUNSKA GRABA	
	ha	%	ha	%	ha	%	ha	%
Fields gardens	119	4	140	18.8	53.6	27.8	22	17.7
Meadows	149	5	94	12.7	9.5	4.9	3	2.4
Orchards	-	-	-	-	6.6	3.4	22	17.7
Vineyards	-	-	-	-	28.7	15	52	42
Pastures	634	21.3	70	9.5	22	11.4	9	7.2
Forest	1993	67	427	57.5	68.6	35.7	11	9
Other categories	80	2.7	11	1.5	3.5	1.8	5	4
TOTAL:	2975	100	742	100	192.5	100	124	100
cultivated fields in per cent	24		53.9		100		100	
PRODUCTION: food crops give following percent- age of total production on farming surfaces (in corn units)	7.5		25.2		46.9		69.4	
Within the scope of food crops (in per cent of corn units) the following crops give								
wheat	8.9 %		26.0 %		29.0 %		39.1 %	
rye	38.8 %		36.6 %		13.9 %		-	
potatoes	50.0 %		26.6 %		33.0 %		27.8 %	
fruit	-		5.0 %		20.5 %		27.7 %	
other crops	2.3 %		5.8 %		3.6 %		5.4 %	
Of fodder crops (in per cent of corn units) farming surfaces give the following yields	92.5 %		74.8		53.1		30.6	
Within the scope of fodder crops the figures for the yields in per cent of corn units are:								
barley	-		4.8		2.1		-	
oats	3.5		8.5		1.3		-	
clover	0.6		3.0		24.7		-	
other fodder crops	0.1		3.7		13.5		19.0	
meadows	74.0		74.0		18.1		20.2	
pastures	21.8		6.0		4.7		3.9	
maize	-		-		35.6		56.9	

	KOPRIVNA	STROJNA	RUNEČ	HUNSKA GRABA
Vegetation production in corn units per ha of farming surface				
a) food crops	13.4	13.4	30.2	23.9
b) fodder crops	3.0	7.2	22.2	21.1
c) together	3.2	8.3	26.2	23.0
Vegetation production in corn units per person of agrarian population				
a) food crops	4.6	4.1	5.2	3.5
b) fodder crops	56.5	12.0	6.0	1.5
c) together	61.1	16.1	11.2	5.0
Vegetation production in corn units per person of active agrarian population				
	94.7	84.2	25.5	14.2
Structure of stock in animal units Percentage of animal units according to the kinds of animals:				
Horses	17.9	13.0	2.7	3.8
Cattle	67.3	69.3	66.8	72.6
Swine	8.6	11.6	25.4	18.4
Sheep, Goats, etc.	4.4	3.7	0.4	-
Poultry	1.8	2.4	4.7	5.2
The percentage of cows expressed in animal units taken from the total number of cattle				
	54.6	50.8	75.0	82.0
Number of animal units per ha of farming surface				
	0.218	0.557	1.15	1.213
Number of animal units per person of agrarian population				
	4.9	1.078	0.6	0.417
Number of animal units per person of active agrarian population				
	6.34	5.64	1.12	1.18

Уго Сергеевич Зарев  
Владимир Александрович Зубович

Картирование использования  
почвы и изучение аграрных  
структур и систем в хозяйствах

Последствие общественное и физио-  
мическое развитие хозяйства характер-  
ны уровнем концентрации между аграриями  
и сельскохозяйственной службой  
природы. Это развитие отражается  
в формах перемены жилищного состава  
населения, в перемене аграрных струк-  
тур и в перемене использования почв  
как в аграрных, так и в неаграрных районах.

С 1953 г. число активного сельскохозяйствен-  
ного населения уменьшилось на 500  
тысяч человек. Нехозяйственные  
отрасли народного хозяйства постепенно  
не только естественных причин взроста  
населения, но и бывшее население сель-  
скохозяйственного на крестьянского населения

Проект

Изменение состава активного населения  
в сельском хозяйстве (структур-  
table)

Мы наблюдаем в значительной мере  
~~структурные~~ расселение деревни в сель-  
ские перемены сельскохозяйственного  
населения в город, а также в сель-  
ские и именно для хозяйства характер-  
ного явления. А именно: крестьянские

Население, перешедшее прогрессивно  
остается дома в деревне и ежегодно  
ездит на работу в более или менее  
отдаленные промышленные центры.

Прогрессивно развивающаяся теоретическая  
деревенская жизнь, с одной  
стороны, последствием переноса в  
свои пределы крестьянских хозяйств,  
которые в настоящее время предлагают,  
с другой стороны, последствием быстрого  
роста неаграрных отраслей народного  
хозяйства, которые все более и более кон-  
центрируются в основном месте рабочей  
силы. В настоящее время, если в  
настоящее время огромные массы крестьян-  
ских семей работают также в неаграрных  
отраслях и именно так, что доход на-  
селения зависит одновременно и от земли  
и от работы вне сельского хозяйства  
сильно зависит и не способ использовать  
свою землю и не сельское хозяйство вообще.  
Чем выше доход и квалификация плечей  
крестьянской семьи, тем ~~меньше~~ меньше эти  
семьи зависят от дохода от собственного  
крестьянского хозяйства и таким образом  
параллельно с повышением квалификации  
и связанным с ~~этим~~ повышением дохода  
плечей крестьянской семьи, то реализован-  
но в неаграрных профессиях, уменьшается

и интенсификация использования почвы.  
Этим процесс проходит быстрее в южной  
местности, ~~где~~ <sup>где</sup> ~~находящейся~~ <sup>находящейся</sup> ~~одна из~~ <sup>одна из</sup> ~~лучших~~ <sup>лучших</sup>  
Крупными промышленными центрами.  
Поэтому вблизи таких центров в последние  
перевооружением плетов крестьянских  
семей и уменьшения <sup>доле</sup> ~~интереса~~ <sup>ин-</sup>  
тенсивной обработке земли, создать  
условия для интенсификации и возникать  
крупные специализированные сельско-  
хозяйственные предприятия, как в области  
"агроиндустрия".

Четверто этап процесса, характеризу-  
ется элементарной как географический  
так и экономический характер, со-  
стоявшийся фирмирования, с точки  
зрения интенсификации обработки земли  
трех районов.

- а.) южная промышленная местность, где воз-  
никает специализированные предприятия  
в рамках агроиндустриального сектора  
(агроиндустрия).
- б.) окрестности промышленных центров в  
более широком смысле этого слова, с  
менее благоприятными для аграрии  
(интенсификации), и для современного сель-  
ского хозяйства условиями и где земля  
находится в руках плетов крестьянских  
семей, имеющих свойство дохода от  
звух и от плетов. В таких местностях

~~температура~~ полимеризационное производство  
быстро расширяющаяся и хозяйств  
переходит к специальным сельскохозяй-  
ственным отраслям, преимущественно гин-  
ротинг.

- с.) Главными образцами сельского хозяйства являются  
районы в горных местностях, на  
карсте и на ~~краях~~ границах платон-  
ской возвышенности, где условия для  
современного специализированного ~~на~~ сель-  
ского хозяйства мало благоприятны  
и отсюда, сельское население переселя-  
ется преимущественно в горы, интенсифи-  
кцию же использования земли проводят.
- д.) районы, обладающие благоприятными  
для сельского хозяйства условиями,  
но расположенные далеко от промышлен-  
ных центров ~~и~~ специализиро-  
ванная - владение приусадебных участков  
в промышленности и сельском хозяйстве (выгодные,  
садоводство, растениеводство, разведение рас-  
тений для промышленного сырья. Про-  
изводство в таких районах находится  
в руках социалистического сектора  
либо в форме аркоидов или же  
в форме кооперации.



Институт географии чехословацкого университета в  
 Праге на основании предыдущих резуль-  
 татов исследований ~~аграрного~~ сельского хозяй-  
 ства, проведенных сотрудниками географии  
 (Мелик, Клемент) <sup>2</sup>, ~~приведенных~~ начал в  
 последние два года систематически иссле-  
 зовать несколько примеров ~~типичных~~  
 местностей, являющихся частью выше-  
 упомянутых районов. Особую ценность  
 эта работа ~~настала~~ <sup>стала</sup> приобретать после того,  
 как началось сотрудничество с польскими  
 коллегами под руководством проф. Костри-  
 вицкого. Югославские географы согласуют  
 картирование сельскохозяйственной и ау-  
 ренные аграрных систем в рамках работы  
 комиссии Совета географических обществ  
 Югославии. В этой работе уместно также  
 кафедра географии со своими suggestions.  
 Попробуйте результаты Ясно и понятно,  
 что ~~на~~ теперь необходимо согласовать  
 деятельность всех югославских ~~и~~  
 географов, поэтому мы ~~предлагаем~~ <sup>намерены</sup> в  
 духе с 11-го по 13-~~го~~ <sup>ое</sup> июня ~~собрать~~  
 в ~~Белград~~ ~~для~~ организовать в Советском  
 Союзных симпозиум, для которого мы  
 готовы обобщить программу ~~для~~  
 систематическое картирование ми-  
 нимальных местностей в Югославии и  
 подготовить единую методологию, которую  
 мы согласуем с международными методиками

5  
Многообразие овлеченной природы и  
значительное развитие в экономическом  
развитии отдаленных местностей Невья-  
ны, которые наша страна изучала  
от предельных времен, сильно влияют на  
ее способ и систему обработки земли.  
Поэтому мы должны быть при пово-  
ротах метода исследования, компьютерной  
техники в ее отношении нашим об-  
щественным и природным условиям,  
считая с значительным опытом  
аграрных географов скандинавских  
стран. В связи с работой на местах,  
анкетированием и картированием мы  
воспользовались до некоторой степени  
графиком опроса польских коллег,  
работающих под руководством проф.  
Костовича, тогда как ее можно считать  
для ее истинно-социальных аспектов была  
служила ~~материалом~~ мюнхенская школа  
проф. Хартке. Очень важна для нас также  
научная трудя Энеди из Венгрии и проф.  
Руджика и ГДР.

Институт географии университета  
в Люблине кроме демографических  
вопросов еще интенсивно занимается  
также агрогеографическими вопро-  
сами, социальными вопросами деревни  
и аграрным использованием почвы.

Система машинно-тракторной работы мы начинаем лишь недавно. Поэтому у нас еще нет полной картины о способах использования мощи, о земледельческого производства и аграрных системах по всей территории, всей Словении или вообще в более обширной местности. Однако данные у нас имеются только для сравнительно несобластных районов. Поэтому мы будем говорить о исследованных аграрно-фермерского района на склонах у долины Мечи (Альвар-Каравацки) и винодельческих возвышенностях Словенских гор (субпанонские холмы). Для обоих районов характерным является то, что в них преобладают крестьянские хозяйства, члены которых лишь в меньшей мере зарабатывают на стороне земледелием вне сельского хозяйства, хотя они и стараются так или иначе модернизировать ~~или~~ и рационализировать свое хозяйство. Кроме того, здесь единственное крестьянское хозяйство складывается с социалистическим способом хозяйствования. В Словенских горах <sup>земельных</sup> социалистическая фермерская применяется в виноделии, а в Мечиской долине в освождении лесном хозяйстве.

В. Для того, чтобы яснее показать  
разницу в способах использования  
печи и архитектурных систем в рамках  
той же местности, разницу, кото-  
рая возникает вследствие различных  
мирогеографических <sup>и</sup> социально-эко-  
номических факторов мы исследовали  
Мезиштуру долины и две ~~на северных~~  
поселка в Словенских горах, занимаю-  
щихая видографическом. В обеих местно-  
стях мы выбрали по одной деревне, в  
которой вследствие неблагоприятных  
природных и общественных условий  
еще преобладает старейший типичный  
мурный способ производства предельно  
единичных а именно деревянно строи-  
та в алпийской местности и Ручей  
в Словенских горах, и две деревни с  
главным образом специализированным  
и социализированным способом сель-  
скохозяйственного производства: деревню  
Коприва в алпийской местности и  
Нужску гряду в Словенских горах

В Мезиштур долине рельеф связан  
с ~~и~~ мелкими и закругленными формами  
на непрочных каменных породах  
палеозойского и терригенного возраста,  
посредством ~~то~~ более толстых ~~на~~  
своем южной части, с рельефом "более



населения составляет всего 20%. обрабо-  
тана всего половина полей, остальное  
остаточное <sup>исл</sup> служит в качестве эк-  
стенсивных лугов, которые не удобря-  
ются и не засеиваются травами. Штатное  
количество домашних животных в  
последние годы уменьшилось на 30%.  
Преобладают 4-х видовых севообороты:  
первый воз картофель,  
второй - ~~пшеница~~ пшеница, третий - рожь  
и четвертый - овес. На всей обработанной  
поверхности удел для митанных предразно-  
вильных растений составляет 25%  
зерновых единиц всей продукции. Из  
культурных растений для митания  
преобладают <sup>то в овсянковых мезо</sup> рожь, картофель и пшеница,  
80% ~~то~~ кормовых растений дают люцерна  
и пастбища, а 20% сеют на полях (овес,  
ячмень, свекла и т.д.). Урожайность митан-  
всего 8,3 зерновых единиц на гектар,  
из чего на растения для <sup>мозговой</sup> ~~питания~~  
пшеницы приходится 13,9 зерновых  
единиц, а кормовых растений 7,2  
на зерновых единицах на гектар.

Животноводство не специально зовется.  
 Почти три четверти всех нормальных  
 домашних животных составляет рогатый  
 скот. Среди последних половина коров, а  
 остальное лошади и лошади. Четверть  
 домашних животных составляют лошади  
 и свиньи, домашней птицы мало.  
 Животноводство является руководящей  
 главной хозяйственной отраслью в рамках  
 всего сельского хозяйства. Кроме того, оно  
 важно для удобрения, работы скота и  
 транспорта. Животноводство культивирует  
 растения равняется 16,1 зерновых единиц  
 на ~~декаре~~ и 1,078 голов нормальных  
 животных, на ~~одном~~ <sup>а</sup> ~~декаре~~ <sup>а</sup> ~~сельскохозяйственного~~ <sup>сельскохозяйственного</sup> населения, 84,2  
 зерновых единиц и 5,54 голов животных.

### Копришна

Совсем другую картину использования  
 почвы и сельского хозяйства мы находим  
 в деревне Копришна, лежащей в  
 южной части долины в более расчлененной  
 реке на малых и средних, мелководных  
 и метаморфических каменистых  
 породах. Для этой местности характерна  
 высота - большинство высидет  
 находится на высоте 1000 м. над уровнем  
 моря.

Своей родной землей довольно толка,  
однако, вследствие большого количества  
деревьев (1452 шт) и тем самым  
земля здесь невысокого качества и довольно  
болотистая. Из-за неблагоприятных  
условий у верхней границы кяселенности  
~~здесь преобладают не то~~ на содержание  
крестьянской семьи в прошлом требо-  
валось большее количество земли, поэто-  
му здесь преобладает ~~более~~ более круп-  
ное землевладение - в среднем 85 гектаров,  
тогда как в Стройке, где природные  
условия лучше, приходится в среднем  
22 гектара на одно хозяйство. Поля,  
крестьянское хозяйство основывается  
главным образом на животноводстве и  
земледелии, между экономическим по-  
тенциалом крупного крестьянского хо-  
зяйства в Копривке и средним в  
Стройке не было существенной разницы.  
В связи с ростом цен деревьев же возникла  
большая разница относительно тракторо-  
машин местными, аграрного использо-  
вания земли и аграрных систем. Стройка  
вследствие небольшого количества земли  
на одно хозяйство и ~~неудачно~~ недо-  
статка леса ~~она~~ сохранила старую  
полнотелую систему, при чем  
~~вместо~~ общественное и экономическое



развитие спецоансов в уменьшении лесок-  
мощи населения и в менее интенсивной  
обработке земли. ~~След~~ В Коривне жесть  
не с земледелия перешли на лесоводство,  
вследствие чего объем лесных поверхнос-  
тей увеличился. Главной зимовальной  
отраслью является лесоводство и живот-  
новодство. обработано только 25% полей.  
Главнейшие <sup>пшеница</sup> культуры - Картофель и рожь,  
тогда как других культур не сажат.  
Эти культуры дают неплохой урожай,  
так как из-за большого количества снега  
и частых удобрений иная достаточна  
тогда как пшеница и пастбища вообще не  
удобряют. Культурные растения, чрезвы-  
чайные для белорусской пшеницы со-  
ставляют 7,5% всех культур, 96%  
кормовых растений добывается из лугов  
и пастбищах. Из домашних животных  
разводят главным образом коров, при  
чем внимание обращается на молочность.  
Для возни ~~и~~ все сено разводит также  
пшеницы, тогда как другие породы живот-  
ных скармливают лишь домами для домашних  
кур. Производство культурных растений  
на 1 гектар возделанной земли равняется  
3,2 зерновых единицам (растений для  
пшеницы людей) 13,4 кормовых растений  
3 зерновых единицы. На одного человека белорус

своё

Ильинского на семенях приходится 61,1 зерновых единиц и 4,9 голов скота, а на одного аммиачного пенья сельскохоздминистрации на семенях ~~24~~ 94,7 зерновых единиц и 6,34 голов скота.

Руней В Словенских горах на семенях сельского хозяйства и использование земли ~~то~~ сильно развито виноградарство и садоводство. Деревня Руней лежит среди грядных лоточерско-ормонских холмов 280 до 320 м. над уровнем моря. Холмы имеют слегка южный рельеф и пологие склоны, поросшие можжевельником и соснами и лишайной землей. В этой местности в последнее время виноградарство ~~везде~~ всецело пошлох склонов и в значительной степени изменилось из-за цели при введении более рациональных форм хозяйства отстал из-за конкуренции соседних местностей, обладающих более благоприятными условиями.

В последнее время поверхность, засаживаемая виноградниками уменьшилась на половину, но и размер полей и урожай же сильно выросли. Объем культуры, предназначенных для пищи людей и кормовых растений с одной стороны, и

кормовых растений с другой точки зрения:  
 назов (47% : 53%). Этот <sup>главный</sup> ~~самый~~ <sup>основной</sup> ~~всего~~ <sup>основной</sup>  
~~тип~~ пшеницы, рожь и картофель, что  
 показывает, что урожай предназначен для  
 домашнего потребления. На продажу раз-  
 возят фрукты, которые составляют  
 1/5 для пшеницы предназначенных растений.  
 По сравнению с альпийской шеечностью  
 луга и пастбища дают сравнительно  
 мало кормовых растений, тогда как  
 кукуруза и клевер играют большую роль.  
 В зимний период вельями, особенно  
 теплая осень дает возможность получить  
 урожай с растений, растущих по типу  
 Главным образом проводится 4-х летний  
 севооборот: 1-й год - картофель  
 второй - пшеница, третий - рожь, <sup>или ячмень</sup>  
 четвертый - клевер. В животноводческих райо-  
 нах главным образом коров, при этом  
 главное внимание обращается на молочную  
 Разводят также много свиней и домаш-  
 ний птиц. Производство растений на  
 гектар равняется 26,2 зерновых единиц.  
 На пашах приходится 11,2 зерновых  
 единиц и 0,6 голов скота. На одном ак-  
 тивном поле сев всего на площадь  
 приходится 25,5 зерновых единиц и  
 1,12 голов скота.

Кунская граба - виноградарский район, охватывающий прилегающую долину с крутыми склонами. Микроклиматические условия в этой местности особенно благоприятны для разведения винограда: осадков здесь 990 мм, средняя температура в июне равняется  $20^{\circ}\text{C}$ . Сумма температур периода вегетации никогда не бывает ниже  $3000^{\circ}\text{C}$ . Заморозки и град бывают, но редко. Во второй мировой войне большинство виноградников принадлежало германцам из Австрии (Траус, Рахгольц), возделывали же их немецкие виноградары. После национализации и упразднения лентинского винограда - дей-цурвицкинов в собственности социалистического сектора, перешло 70% земли, главным образом виноградников. Почти все эти виноградники сеются у строителей на террасах, которые обрабатываются механизмами. Частной собственности оставшаяся земля, идущая для виноградарства, меньше. Этим занимаются крестьяне-единоличники и рабочие колхозов. Производство кувшиновых растений и <sup>листв</sup> живогородки мало чем отличается от таковой же в Рунере. Частные виноградники

В плохом состоянии многие отмирают  
и превращаются в поля и луга. Вслед-  
ствие введения ~~террас~~ террас и  
и других лучших сортов винограда  
производство в виноградарстве возросло  
с приближением к 18 зерновым единицам  
на гектар, тему она и теперь равняется  
в устаревших распаханных виноградарствах,  
уже на 50 зерновых единицах на гектар.

Воздушная влажность района сильно  
отмирающая друг от друга как и по  
общим природным условиям, так и по  
своей роли в социально-географическом  
развитии местности. Во времена аграр-  
но-феодалского хозяйства, когда сельская  
семья жила исключительно земледельческим  
сельским хозяйством между бюрократическим  
помещичьими и крупным крестьянским  
хозяйства в Копричье, среднего в Остроине  
и маленького в Словенских горах  
там не было <sup>большой</sup> различия вследствие  
менее благоприятных природных условий  
в Альпах и более благоприятных в  
Словенских горах. Рост цен ~~на~~ дереву  
~~как~~ вследствие роста цен на дереву не только  
более крупных лесных массивов  
привело к большой дифференциации  
и так как ценность большой крестьян-  
ских хозяйств в лесистой местности

сильно возросла, несмотря на такие менее  
благоприятные природные условия.  
Внезренье же современной агрохимии  
в последнее время сильно меняет  
целостность отдельных форм рельефа и  
вещи вносит перемены и изменения в  
способ использования земли. В ан-  
глийской местности поля все меньше  
и меньше, т.к. эти последние превра-  
щаются в луга и пастбища, в холми-  
стой же Великобритании местностями,  
обладающей благоприятными микро-  
климатическими условиями те воз-  
растают <sup>устраивают</sup> террасы, обрабатываемые при  
помощи машин. Там, где условия для  
разведения ветхораза неблагоприятны,  
ветхоразники превращаются в фрук-  
товые сады, поля и луга. Районы  
природные условия которых особенно бла-  
гоприятны для той или иной культуры,  
повернулись особенно ошущим теплотой  
переходом относительно структуры  
собственности и связанной с ней спо-  
соба использования земли. В этих ра-  
йонах со второй мировой война земля  
беспрестанно переходила в руки, не-  
царствящие руки. После второй мировой  
войны всевозможные немотельности  
земли в Контакте возникло огромное

социалистическое сельское хозяйство, а в Кунской граде современной социалистической виноградарской комбинации. Характерно для обеих то, что благодаря более интенсивной обработке земли производительность в них быстро растет.

~~Везде~~ Употребление современной техники в сельском хозяйстве стало привычкой. Быстро упала землеробная полевыми культурами в относительно менее благоприятных условиях и перемена в характере сельского хозяйства в таких районах. ~~Сильно~~ <sup>связано</sup> с разными климатическими условиями ~~но~~ <sup>со</sup> структурой собственности, но с большим или меньшим влиянием индустриализации эти районы — ~~относительно интенсивности~~ ~~но~~ ~~интенсивности~~ и способы обработки земли ~~меняются~~ в разных перетерпевая разные изменения, как по местностям, так и по отдельным хозяйствам. В Корриве, где земли у крестьян больше, а природное условие менее благоприятно, крестьяне быстро переходят на орошение и ирригационное хозяйство. Кушумир, преимущественно для пшеницы, ~~разно~~ ~~интенсивно~~ ~~раз-~~ ~~возит~~ на небольших поверхностях картофеля и ячменя, а не основной земли экстенсивно разводит кормовые растения.

Свободом управлен, картограф и рост  
разнодет на по редеду более похкозущих  
мелди, ~~которые~~ хорошо удобряемых полях.

В строике не смотря на меньшее число  
работных рук, сохранилась старая система  
хозяйства, при которой крестьянин ста-  
рается обеспечить себя как можно больше  
собственными средствами. В альпийской  
местности, где преобладает экстенсивное  
производство кормовых растений для скота  
на лугах и пастбищах, ~~ра~~ производство  
растений, выраженная в зерновых и  
травяных и в числе голов скота на одного  
человека ~~сельского~~ хозяйственно земледель-  
ческой хозяйства значительно выше, чем  
в Словенских горных, где культура  
для пшеницы и для корма возделывают  
интенсивно на небольших поверхностях.

В альпийских районах, где корм  
для животных добавляется экстенсивным  
произв на лугах и пастбищах, произ-  
водство растений и ~~земель~~ пошлельно  
голов скота не велико и низкая, ~~но~~  
а на одного человека сельского хозяйства,  
чем в северные районы на северо-востоке,  
очень ~~высокая~~ высокая, тогда как в вино-  
градских районах <sup>на Юго-западе</sup> ~~картин~~ совсем  
обратную картину.



Kaptivanu i prabi tal u stvaraj agrarni  
naseljenost u Jugoslaviji  
Agrarno-geografska istraživanja u jugoslavenskim  
uslovima

Erkencić, T. ; Klenović V., Zelenica

Suvremeni društveni razvoj Jugoslavije karakterizira pojačana industrijalizacija načina proizvodnje i socijalizacija agrara. Ovakav razvoj odražava se u promjeni zanimanja stanovnika, izmjeni agrarnih struktura i agrarnih pejzaža te u transformaciji oblika i funkcija naselja. Posljedice su dakle kompleksne, tipične geografskog sadržaja.

Tab. 1. <sup>(kontinuitet)</sup> Opadanje udjela aktivnog stanovništva u poljoprivredi 1)

Godina : SFRJ	Srbija		Hrvatska		Slovenija		Bosna i Herceg.		Makedonija		Crna Gora	
	-	+	-	+	-	+	-	+	-	+	-	+
1948	70.6	74.5	66.2	44	49.0	21.6	77.3	6.2	91.2	14	76.0	5.4
1953	60.9	67.4	57.3	3.6	43.0	7.9	63.6	2.2	65.2	4.3	58.8	2.1
1961	57.7	59.1	45.2	6.0	31.5	20.0	54.7	3.0	55.2	4.0	46.6	5.1

+ ili - označuju razliku od jugoslavenskog prosjeka

Od 1953.g. broj aktivnog stanovništva u poljoprivredi smanjio se za oko 500.000. Sekundarna i tercijarna zanimanja primaju dakle ne samo sav prirodni prirast, već i znatan broj ranije agrarnog stanovništva. <sup>Vrši se dakle</sup> Raslojavanje sela <sup>koje</sup> se, međutim, odražava <sup>ili iseljavanjem</sup> u emigracijama (u gradove ili druga agrarna područja) ili pak u "mobilnosti" stanovnika, odnosno u napuštanju agrarnog i prihvaćanju drugog zanimanja, ali <sup>od seljavanja a to ima veliki uticaj u praksi na broj stanovnika</sup> bez emigracije. U oba slučaja vrši se deagrarizacija, odnosno urbanizacija <sup>u cjelokupnom načinu života.</sup>

<sup>Posljedice raslojavanja su sve 'do sada velike</sup> Stupanj poslijeratne emigracije u gradove prelazi tempo izgradnje gradova pa ona rezultira i u brzom porastu "dijeljih naselja" u predgrađima naših većih centara. Mnogi <sup>međutim</sup> ~~ostaju~~ u selima i nakon što su napustili agrarno zanimanje, <sup>ta</sup> je <sup>to</sup> uvjetovala jake dnevne migracije radne snage. U mnogim našim selima preko polovine stanovništva se više ne bavi poljoprivredom. Sela su za njih prvenstveno stambena mjesta, a ne više i radna. To je naročite slučaj u blizini gradova i industrijske.

~~Očito je, da će se raslojavanje sela nastaviti i ubuduće jer će ga poticati pojačana potreba radne snage u sekundarnim i tercijarnim zanimanjima kao i nerentabilnost malih seoskih gospodarstava, koja <sup>brojem</sup> prevladavaju. U suvremenom životu je <sup>ovim toga</sup> ~~nestalim~~ nespojiv rad u neagrarnim za-~~

1964 }  
Povojni družbeni in ekonomski razvoj Jugoslavije karakterizira hitra industrializacija in socializacija agrarne proizvodnje. Ta razvoj se odraža v silno hitrem spreminjanju ekonomske strukture prebivalstva, spremembi agrarnih struktur in spreminjanju načina izkoriščanja tal v agrarnih pa tudi v neagrarnih področjih. Od leta 1953 se je število aktivnega kmečkega prebivalstva zmanjšalo za okoli 500 000 ljudi. Sekundarni in terciarni sektor gospodarske dejavnosti ne sprejema samo prirodni prirastek odraslega prebivalstva temveč tudi veliko število agrarnega prebivalstva. Sledimo lahko zelo hitremu razseljenju vasi kar proži na eni strani proces izseljevanja še nedavno agrarnega prebivalstva v mesta ali pa kar je za Jugoslavijo zelo značilno, kmečko prebivalstvo, ki sprmeni poklic oastane doma na vasi in dnevno potuje na delo v bolj ali manj oddaljeno gospodarsko središče.

Poklicno preslojevanje vasi je na eni strani posledica nerentabilnosti malih kmetijskih gospodarstev, ki so v Jugoslaviji v prevladi, ter potrebe po delovni sili v hitro se razvijajočih ~~sekundarnih in terciarnih~~ <sup>neagrarnih</sup> gospodarskih dejavnostih, ki iz razdobja v razdobje s pospešenim tempom večajo število delovnih mest. Danes je v Jugoslaviji dvojna zaposlitev družinskih članov kmečkih gospodarstev vsakdanji pojav in prav to je ta gospodarska povezanost ~~med kmečkimi družinami~~ <sup>med kmečkimi družinami</sup> dvojnega dohodka od nekmečke zaposlitve in zemlje hkrati ~~imajo pomemben~~ <sup>imajo pomemben</sup> odločujoče vpliva na način izrabe tal in ~~menjave agrarnih sistemov~~ <sup>agrarne gospodarstva</sup>. Prav za prav to regulira dohodek družinskih članov iz nekmečkih poklicev. Čim večji je dohodek in ~~kvalifikacija~~ <sup>agrarne in kmetijske gospodarstva</sup> tem manjša je odvisnost malih ~~kmečkih obratov~~ <sup>in gospodarstev</sup> od dohodka kmetijstva in zato s povečevanjem kvalifikacije in stem povezanim dohodkov družinskih članov kmečkih družin v neagrarnih poklicih upada intenzivnost izkoriščanja tal. Ta procen se je hitrejši v ravninskem svetu z močnimi industrijskimi centri. V območju industrijskih središč so zaradi prekvalifikacije družinskih članov kmečkih družin ~~in pomanjkanja~~ <sup>in pomanjkanja</sup> ter zmanjšanja interesa do intenzivnejše obdelave zemlje dozoreli pogoji za socializacijo, nastati so veliki, specializirani kmetijski obrati, ki jih imenujemo agrakombinate.

Prav ti procesi, ki jih karakterizirajo ~~demogeografski in ekonomski~~ <sup>demogeografski in ekonomski</sup> elementi demogeografske in ekonomske narave so prispevali, da se jim glede na stopnjo intenzivnosti izrabe tal oblikujejo trije tipi področij.

a/ ~~Agarna področja s širšimi in boljimi pogoji za kmetijsko~~  
 Obmestna področja na ravninskem svetu kjer se oblikuje specializirana proizvodnja socialističnega sektorja (*Agarna področja*)  
 b/ Širša okolica industrijskih središč z manj ugodnimi prirodnimi pogoji za obradnino in za moderno kmetijsko proizvodnjo, kjer je zemljišče v rokah članov kmetijskih družin z dvojnimi dohodki. Tu se naglo opušča polikurturna proizvodnja ter se preusmerja na ~~do tri~~ *od dveh* specializirane gospodarske panoge usmerjene k tržni proizvodnji.

c/ Pretežno agrarna področja v gorskem svetu, na krasu ter v perifernih predelih subpanoskega sveta, kjer za ~~kmetijsko~~ *ku se* moderno specializirano kmetijstvo niso ugodni pogoji ~~prebivalstva~~ *se pa izseljuje* za trajno ~~ter se zato~~ intenziteta izkoriščanja tal ~~stalno znižuje~~ *je izpadajo* in ~~dobiva vedno bolj ekstenzivni značaj.~~

d/ ~~Področja s manj ugodnimi pogoji~~ Področja z ugodnimi prirodnimi pogoji za kmetijstvo toda oddaljena od industrijskih središč ~~z manjšimi~~ *so pa h* zaradi specifičnih pogojev usmerjajo v eno panogo/ vinogradništvo, sadjarstvo, industrijske rastline, ~~gozdarstvo~~ *gozdarstvo*, kjer je proizvodnja ~~ali v obliki~~ *pa v* ~~agrob~~ *podobno v* kombinatov ali pa v obliki kooperacije.

*Graditve se geografijo*  
 V ~~povejnem razvoju je Geografski inštitut~~ *Geografski inštitut* univerze v Ljubljani ~~na osnovi predhodnih rezultatov raziskav agrarnega gospodarstva~~ *na osnovi predhodnih rezultatov raziskav agrarnega gospodarstva* pričel ~~zlasti v zadnjih dveh letih s sistematično raziskavo nekaterih primerov pokrajin, ki spadajo med zgoraj navedene tipe področij./ citat.~~ *zlasti v zadnjih dveh letih s sistematično raziskavo nekaterih primerov pokrajin, ki spadajo med zgoraj navedene tipe področij./ citat.* Posebno intenzivno se je to delo pričelo razvijati s pričetkom skupnega dela s poljskimi kolegi pod vodstvom prof. Kostrovitckega. Kartiranje izrabe tal in študij agrarnih sistemov ~~koordinirano jugoslovanski geografi v okviru posebne komisije SGR SFRJ, sedežovanje se kaže tudi v tesnem sodelovanju med fakultetami v Ljubljani, Zagrebu in Beogradu pri delu s študenti.~~ *koordinirano jugoslovanski geografi v okviru posebne komisije SGR SFRJ, sedežovanje se kaže tudi v tesnem sodelovanju med fakultetami v Ljubljani, Zagrebu in Beogradu pri delu s študenti.* Dosedanji rezultati našega dela terjajo ~~usklajevanje~~ *usklajevanje* akcije vseh jugoslovanskih geografov, zato imamo na programu od 11. do 13. junija zvezni simpozij, ~~na katerem bomo pripravili obsežen program za sistematično kartiranje tipičnih področij Jugoslavije in pripravo enotne metodologije, katero nameravamo vsesko~~ *na katerem bomo pripravili obsežen program za sistematično kartiranje tipičnih področij Jugoslavije in pripravo enotne metodologije, katero nameravamo vsesko* kor vskladi ~~ti~~ *ti* z mednarodnimi metodami.

Heterogenost prirodnih pogojev ter velike razlike v ~~gospodarskem~~ *socialističnem* razvoju v posameznih predelih Jugoslavije, ki jih je ~~podedovala~~ *podedovala* soc. Jugoslavija, odločilno vplivajo na način in sisteme izkoriščanja tal. ~~se na silile da pri pripravi metode proučevanja, ki bi sutreza~~ *se na silile da pri pripravi metode proučevanja, ki bi sutreza*

*izkušnja in izkušnja*  
našim pogojem, upoštevamo dragocene izkušnje agrarnih geografov srednje evropskih dežel. Pri terenskem delu, anketiranju in kartiranju smo precej dragocenih izkušenj prevzeli od poljskih kolegov, ki jih vodi prof. Kostrovitcki, genetsko socialne aspekte pa smo prevzeli od Münchenske šole, ki jo vodi prof. Hartke. Dragocene pa so nam bile ~~izkušnje in literarni prispevki~~ Enđedi-ja iz Madžarske in prof. Rubitschka iz Vzhodne Nemčije.

Institut za geografijo univerze v Ljubljani se razen z demogeografskimi problemi ukvarja zelo intenzivno z agrarnogeografskimi problemi, socialnimi problemi vasi ter agrarnim izkoriščanjem tal, ~~in agrarnimi sistemi.~~ ~~z sistematičnim delom smo šele pričeli.~~

Zato še ne moremo podati zaključene podobe o načinih izkoriščanja tal o agrarni produkciji in agrarnih sistemih za celotno Jugoslavijo, Slovenijo ali širše področje temveč le za manjša področja. Naše poročanje

*omejiti*  
*(Alpe - karavanki)*  
*(Alpe - karavanki)*  
nameravamo omejiti na primere raziskav agrarnega gorskega obrobja Mežiške doline ter vinorodnih Vzhodnih Slovenskih goric / subpanonskih/

*priznati*  
Za obe področji je skupno to, da vključujeta kmetijska gospodarstva ki so le v neznatni meri navezana na zaslužek izven kmetijstva, a že več ali manj podvržena modernizaciji in racionalizaciji kmetijske

produkcije. ~~Za obe področji je~~ *je tu isto* ~~značilno~~ da se prepletata privatni način kmetijskega gospodarjenja s socialističnim načinom gospodarjenja. V vinorodnih Slovenskih goricah se uveljavlja socialistični način gospodar-

*na vinorodnih*  
*na vinorodnih*  
*na vinorodnih*  
jenja ~~na vinorodnih~~, v alpskem svetu pa na gozdnih površinah. ~~Da nam bo predstavila o razlikah v načinih izkoriščanja tal in agrarnih sistemov~~

*le možna je*  
v okviru iste regije zaradi razlik v mikrogeografskih, socialno-ekonomskih/ socialno - posestnih/ *faktorjev* uveljavljanja kmetijskega gospodarstva ter faktorja specializacije proizvodnje, ~~smo vžela za alpski svet~~

*ni ovc*  
*na dve naselja*  
*na dve naselja*  
~~pe dve ter za vinorodnih Slovenskih goric dveh naselji.~~ V obeh predelih smo izbrali eno vas, kjer ~~je manjšim pomenom~~ zaradi slabših prirodnih in družbenih pogojev še prevladuje star polikurturni način proizvodnje

v okviru privatne posesti, Strojno v alpskem svetu in Runeč v vinorodnih Slovenskih goricah in dve vasi s specializirano in pretežno socialistizirano kmetijsko proizvodnjo Koprivno v alpskem svetu in Nunsko grabo v Slovenskih goricah.

V Mežiški dolini je pomešan relief z blagimi in zaobljenimi oblikami na nepropustnih kameninah paleozojske in terciarne starosti, katere so prekrita z debelejšo prstjo, z reliefom strmejših oblik in tanjšo plastjo prsti na mezozojskih apnencih, ki nudi zaradi različne stopnje razrezanosti, ekspozicije in višinskih razlik ter različnega socialno historičnega razvoja različne pogoje za kmetijsko izrabo.

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2) Zopred Zeleni: Agrarna geografija Ljubljanske univerze (direktor)  
3) Jakob Lesona: Soc. geografija slovenskega sveta (direktor)  
4) Jakob Lesona: Soc. geografija slovenskega sveta (direktor - kopir)

STROJNA obsega obsežen kompleks ~~gorskega sveta~~ na nepropustnih kamninah, blagih reliefnih oblik s številnimi policami <sup>bolj plavnimi</sup> ravnelega sveta, ki nudi ~~posebno~~ na prisojnih legah ugodne pogoje za kmetijstvo. ~~Poselitev~~ je v obliki samotnih kmetij, razporejenih v terasah. Zaradi velik~~o~~ oddaljenosti od neagrarnih gospodarskih središč in relativno visoke nadmorske lege / 1000 m / se moderne oblike kmetijskega gospodarstva uveljavljajo počasneje kot drugod v Sloveniji. in so se zato obdržale stare oblike polikulturenega gospodarstva. Vpliv industrializacije in modernega družbeno ekonomskega razvoja se odraža predvsem v depopulaciji, mlada delovna sila se je odselila, delež ~~aktivnega~~ kmečkega prebivalstva znaša le 20%. Obdelanih je le ~~plovcico~~ njiv, ostale ~~se~~ izkoriščajo kot ekstenziven travnik, ki ni niti pogojen niti s <sup>2</sup> travo <sup>3</sup> posejan. Tudi število živine je nazadovalo v zadnjih letih za 30%. Prevladuje 4 letni kolobar; prvo leto okopanine, drugo pšenico, tretjo rž in četrto oves. Na kmetijskih površinah znaša delež prehrabnih rastlin ~~znaša~~ 25% <sup>g</sup> ŽE. skupne ~~mmmm~~ <sup>(prehrabne)</sup> rastlinske produkcije. ~~mmmmmmmm~~ Od prehrabnih rastlin prevladuje rž, krompir in pšenica po vrednosti približno v enakem odnošaju, 80% krmnih rastlin dajejo travniki in pašniki, 20% pa <sup>je</sup> pridelajo v obliki ječmena, ovsa, pese ~~mmmm~~ itd. na polju. Rastlinska produkcija je zelo nizka, saj znaša le 8,3 <sup>(prehrabne)</sup> ŽE na ha, od tega pri prehrabnih rastlinah 13,4 ŽE in pri krmilnih rastlinah 7,2 ŽE na ha.

Živinoreja ni specializirana, skoraj <sup>tri četrtine</sup> 3/4 od skupne vrednosti izražene v GNŽ je govedo. Pri govedu je ~~mmmm~~ po vrednosti polovica krav, ostalo pa voli in mlada živina. Četrtno GNŽ pa odpade na konje in svinje, perutnina je <sup>je</sup> malo pomembna. Živinoreja je v okviru celotnega agrarnega gospodarstva vodilna gospodarska panoga, močno pa dopolnjuje tudi poljedelstvo zaradi ~~gonja~~ vprežne živine na polju in v ~~tra~~ sportu. Rastlinska produkcija na 1 kmečkega prebivalca znaša 16,1 ŽE in ~~pride~~ 1,078 GNŽ, na <sup>vega</sup> ~~aktivnega~~ kmečkega prebivalca pa 84,2 ŽE in 5,54 GNŽ.

#### KOPRIVNA

Povsem drugačno podobo izkoriščanja tal in agrarnega gospodarstva kaže Koprivna, ki leži v južnem delu doline v močnejše razrezanem reliefu <sup>na</sup> magmatskih ~~in~~ paleoizskih in metamorfnih kmaeninah. Za to področje je značilna visoka lega, višina kmetij <sup>leži</sup> v nadmorski višini nad 1000 m. Prst je sorazmerno debela, to ~~ga~~ zaradi velik~~o~~ množine padavin /1452 mm/ in senčne lege je slabše kakovosti z znaki zamočvirjenosti. Zaradi slabših prarodnih pogojev ob zgornji meji naselitv

g. N. Z. (glav. proizvodnja krmne)

je bilo v preteklosti potrebno več zemlje za prživiljanje družine, zato prevlada velika posest, povprečno 85. ha, med tem ko v Strojni, kjer so boljši prirodni pogoji znaša povprečna velikost 22 ha. Dokler je bilo kmečko gospodarstvo navezano na živinorejo in poljedelstvo, med gospodarsko močjo velike kmetije in Koprivni in srednje kmetije <sup>na Strojni</sup> ni bilo bistvenih razlik. Z naraščanjem cen lesa so nastle precejšne razlike v transformaciji pokrajine ~~in~~ v agrarni izrabi tal in agrarnih sistemih. ~~Strojna~~ je zaradi manjše posesti in pomanjkanja gozda ostala pri polikulturnem sistemu gospodarstva, vpliv ~~in~~ splošnega družbeno ekonomskega razvoja se kaže le v depopulaciji in opuščanju intenzivnejše njivske izrabe tal. <sup>Kmetijsko gospodarstvo na v</sup> Koprivna se je <sup>ja</sup> naglo transformirala v gozdarstvo, kar se odraža v povečanju <sup>in</sup> površine. Glavna gospodarska panoga je gozdarstvo in živinoreja. Le 25 % njiv je obdelanih. Glavna prehrabena kultura je krompir in rž, ostale pa so skoraj popolnoma opustili. <sup>zoprejšnje</sup> Prehrabene kulture <sup>stvarijo</sup> dobro uspevajo, ker jim lahko ~~vsakomur~~ zaradi ~~močne~~ živinoreje vsako leto gnjojijo, travniki in pašniki pa ostajajo nepognojeni. ~~Velež~~ prehrabnih rastlin ~~od~~ daje 7,5 % celotne rastlinske produkcije, 96% krmilnih rastlin ~~se~~ pridelajo na travnikih in pašnikih. Pri živinoreji je najvažnejša govedoreja, kje je rahlo poudarjena mlečna usmerjenost. Precejšen pomen ima še konjereja zaradi prevoza lesa, ostale vrste živine goje samo za domače potrebe. Rastlinska produkcija na 1 ha kmetijskih površin znaša 3,2 ŽE na ha (pri prehrabnih rastlinah 13,4, in pri krmilnih rastlinah 3 ŽE). Na 1 kmečkega prebivalca pride pri ~~produkciji~~ rastlinski produkciji 661.1 ŽE, ~~od tega pri prehrabnih rastlinah 56,5 in pri krmilnih rastlinah 56,5 ŽE.~~ ter 4,9 GNŽ. Na 1 aktivnega kmečkega prebivalca pa 94,7 ŽE in 6,34 GNŽ

## RUNEČ

V vinogradniških Slovenskih goricah pa odločilno vpliva na sistem kmetijskega gospodarstva in izrabo tal v vinogradništvo in sadjarstvo. Naselje Runeč leži v zahodnih Ljutomersko - ormoških goricah v nadmorski višini 280- 320 m. V gričevnatem svetu, z blagimi reliefnimi oblikami in manjšimi strminami, ki so prekrite z debelim slojem peščene in ilovnate zemlje. <sup>Na tem področju</sup> ~~Te je ozemlje, ki je na kritični meji~~ za vinogradništvo in prav v zadnjem času <sup>zaradi izboljšanih pogojev in s tem manjše</sup> bolj racionalnih oblik gospodarjenja <sup>in</sup> zaradi konkurence sosednjih področjih <sup>in</sup> z bolj ugodnim reliefom ~~za~~ vinogradništvo, vinogradništvo

namadimpobožnejšihmpobožnejšim na položnejših pobočjih, kjer mikroklimatski pogoji niso tako ugodni propada. V zadnjem času je vinogradniška površina nazadovala za polovico, njive in travniki pa so se močno razširili. Vrednost prehrabnenih rastlin in krmilnih rastlin je precej izenačena / 47 % : 53 % / <sup>9.000</sup> Pri prehrabnenih rastlinah <sup>daje</sup> ~~leže~~ velik delež krompirja, pšenice in rži, <sup>ker ker</sup> da je produkcija usmerjena za domače potrebe. Orientacijo k blagovni proizvodnji kaže sadje, ki zavzema 1/5 produkcije prehrabnenih rastlin. V razliko od alpskih področij odpade zelo malo produkcije krmilnih rastlin na travnike in pašnike, karakteristično je velik <sup>del</sup> obseg detelje in koruze. ~~Imam~~ Dolga vegetacijska doba, zlasti topla jesen omogoča ~~nam~~ gojitev strniščnih kultur. Na plošno je uveljavljen 4 letni kolobar, prvo leto okopanine, drugo pšenica, tretje leto rž ali ječmen ter četrto leto detelja. Pri živinoreji je najvažnejša govedoreja, pri kateri se uveljavlja izrazito mlečna smer. Poleg tega je značilen velik delež svinj / ~~18~~ 4. Pomembna je tudi perutnina. Rastlinska produkcija na 1 ha kmetijske površine znaša 26,2 ŽE <sup>celega</sup> od tega pri prehrabnenih rastlinah 30,2 ŽE in krmilnih 22,2 ŽE. Na 1 kmečkega prebivalca znaša ~~produkcija~~ rastlinska produkcija 11,2 ŽE in 0,6 GNŽ. Na 1 aktivnega kmečkega prebivalca pa 25,5 ŽE in 1,12 GNŽ.

#### NUNSKA GRABA

Nunska graba je vinorodno ~~maselnja~~ področje, ki obsega podolgovato dolino z relativno strmimi pobočji. Mikroklimatski pogoji <sup>za vinogradništvo</sup> na teh pobočjih so izredno ugodni, padavin je 990 mm, povprečna julijska temperatura znaša 20 stop. C. Temperaturna vsota vegetacijske dobe nikoli ne pade pod 3000 stop. C. Največja klimatska ovira so toča in pozebe, ki nastopajo poredko. Do <sup>druge</sup> vojne je bila <sup>večina</sup> zemlja v posesti mečšnov iz Avstrije / Radgona, Gratz / katerim so ~~mnogomno~~ ~~obdelovali~~ ~~so~~ ~~visoko~~ ~~kvalitetne~~ vinograde obdelovali viničarji. Z nacionalizacijo in odpravo viničarskih odnosov je prišlo v last družbenega sektorja 70% površin, pretežno vinogradov. Skoraj vse vinogradniške površine so preuredili v terase, kjer je uvedena strojna obdelava. V privatni lasti so ostale zemljišča, ki za vinogradništvo niso pomembna, na njih ~~se~~ gospodarijo privatni kmetje in delavci kombinata. Produkcija prehrabnenih in krmilnih rastlin ~~pa~~ kakor tudi vloga živinoreje je podobna kot v Runeču. Privatni vinogradi so v stalnem nazadovanju, posamezni so že v fazi odmiranja zamenjuje jih travnik in njiva. S preureditvijo vinogradov na moderni terasni sistem in z izboljšanjem izborom trt se je produkcija v vinogradih dvignila od približno 18 ŽE na ha, kakršna je še

1. vinogradi so kmeti dobili, ki so delom v vinogradništvu  
plečali strojnorojo in malo kompleksni selitvi.





danes v zastarelih privatnih vinogradih, na 50 ŽE na ha.

*mapa*  Obravnavana področja se po skupnih učinkih prirodnih pogojev in po svojem pomenu za socialnogeografski razvoj pokrajine močno razlikujejo. V času avtarkičnega gospodarstva ko je bil edini vir preživetja kmečke družine kmetijstvo, med gospodarsko močjo velike kmetije v Koprivni, srednje <sup>na</sup> Strojni in male v Slovenskih goricah, zaradi slabših prirodnih pogojev v Alpah in boljših v Slovenskih goricah, ni bilo bistvenih razlik. Z naraščanjem cen lesa je večja ali manjša posest gozda povzročila močno diferenciacijo in naglo dvignila vrednost večjih kmetij z gozdom tudi v slabših prirodnih pogojih. Uvajanje moderne agratehnike pa povzroča v novejšem času spremembo vrednosti posameznih reliefnih oblik in s tem spremembo v načinu izkoriščanja tal. Ta se odraža v alpskem svetu v opuščanju njiv, ki se spreminjajo v travnike, pašnike in gozd, v vinorodnih goricah, kjer so boljši mikroklimatski pogoji pa nastajajo terase, ki omogočajo strojno obdelavo. Kjer so za vinograd slabši prirodni pogoji pa se vinogradi opuščajo in spreminjajo v sadovnjake, njive in travnike.

Predeli, ki imajo posebno ugodne prirodne pogoje za gojitev posameznih kultur so doživeli močne spremembe v posestni strukturi in znajo povezanim načinom izkoriščanja tal. V takih predelih je privatna ~~posest~~ <sup>frukt</sup> ~~posest~~ do druge svetovne vojne naglo prehajala v roke tuje nekmečke roke. Z nacionalizacijo teh zemljišč po drugi svetovni vojni je v Koprivni nastal velik socialistični gozdni obrat, v Nunski grabi pa moderen socialistični vinogradniški kombinat. <sup>za</sup> Oba je značilna, da z intenzivnejšim izkoriščanjem tal naglo dvigata produktivnost.

Vpliv uvajanja moderne tehnike v kmetijstvu je povzročil naglo nezadovoljanje ~~kmetij~~ poljedelstva v reliefno manj ugodnih pogojih in spreminjanje ~~panog~~ kmetijskega gospodarstva <sup>intenzivnosti</sup> ~~na~~ teh predelih. Glede na različne klimatske pogoje, posestno strukturo ter na večji ali manjši vpliv industrializacije se ta področja spreminjajo po intenzivnosti in načinu izrabe tal ter gospodarstvih v različno smer. V Koprivni, kjer prevladuje večja zemljiška posest in slabši prirodni pogoji se kmetije naglo preusmerjajo <sup>na</sup> ~~na~~ gozdarstva in živinorejbo. Od prehrambenih kultur goje intenzivno na manjših površinah krompir in rž, vse ostale kmetijske površine so v ekstenzivnem pridobivanju ~~ktme~~ za živino. Njivski kolobar je že ukinjen, krompir in rž goje na reliefno najugodnejših njivah in <sup>za</sup> vsako leto <sup>dobro</sup> gnoje. Na Strojni se je ob zmanjšanem številu delovne sile obdržal star način gospodarjenja, ~~mnogi~~ še vedno pretežno usmerjen k samoskrbi.

