

# MENADŽMENT OSIGURANJA U ZAŠTITI OD PRIRODNIH KATASTROFA

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## **Apstrakt**

*Model solidarnosti je u poslednje vreme sve više zastupljeniji na globalnom nivou. Po navedenom modelu svi činioци imaju rizik od prirodnih katastrofa i shodno tome trebalo bi da imaju i jednak tretman odgovornosti i obaveza. Većina stanovništva u razvijenim zemljama uplaćuje određeni procenat osiguranja u specijalnim fondovima za svoje privatne posede, kuće i automobile. Takav vid osiguranja u Republici Srbiji je nedovoljno razvijen, imajući u vidu da je zemlja u tranziciji. Dosadašnja istraživanja pokazala su da manje od 10% ukupnog stanovništva obezbeđuje sebi ovakav vid osiguranja (premiје životnog osiguranja, osiguranje imovine, stana ili kuće...), što se podstiče od strane bankarskog sektora prilikom odobravanja kredita za kupovinu prve nepokretnosti. Određena zemlja se tendenciji rasta prirodnih nepogoda može suprostaviti uvođenjem mera zaštite životne sredine na dugi rok. Pod merama se podrazumevaju zadaci i preventive koje se preduzimaju od strane nadležnih lica: smanjenje količine izduvnih gasova, poštošnje fosilnih goriva, kao i razvoj novih tehnologija za zaštitu životne sredine.*

**Ključne reči:** *rizik, prirodne katastrofe, osiguranje lica i imovine, zaštita životne sredine.*

## **Uvod**

Posmatranjem stanovništva kroz vreme i svet koji ga okružuje može se zapaziti da je stalno prisutan manji ili veći rizik od prirodnih katastrofa. Na rizik od katastrofa koje nije moguće predvideti deluju mnogi faktori, na koje čovek može nesvesno da utiče. U poslednje vreme, svedoci smo ogromnih prirodnih katastrofa koji nastaju usled globalne promene klime i tako nepovoljno utiču na raspoložive industrijske kapacitete osiguranja i reosiguranja. Prirodne katastrofe vezuju se za geološke ili

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klimatske neželjene pojave, kao što su zemljotresi, vulkani, orkani, tornada, kišne i gradonosne oluje. Najveći rizik jeste kod onih pojava, koje nije moguće predvideti na vreme, koje nastaju bez prethodnog upozorenja od strane nadležnih lica i koje imaju katastrofalne posledice. Poplave, zemljotresi, akcidenti na nuklearnim postrojenjima, objektima i procesima sa hemijsko opasnim materijama, pojava naftnih mrlja, zagađivanje vazduha, vode i zemljišta i drugo, smatraju se nesrećama nastalih usled intenzivnog razvoja i nekontrolisane primene tehnološkog razvoja. Pored toga, takve nesreće imaju visok stepen ugrožavanja stanovništva, njihovih materijalnih dobara i životne sredine.

Predmet istraživanja obuhvata vidove osiguranja od opasnosti prirodnih katastrofa, kao vid zaštite životne sredine. Osiguranje ima ekonomsko-pravni karakter, imajući u vidu složenost postupaka koji se primenjuju u jednom procesu. Ono se sprovodi putem određenih institucija, koje nadoknađuju štetu nastalu usled prirodnih katastrofa na stanovništvo, njegovim nepokretnim i pokretnim stvarima. Osiguranje se može nazavati i udruženjem građana, osnovano od ljudi koji su izloženi riziku od moguće štete, a sa ciljem nadoknađivanja nastale štete kod pojedinaca. Osiguranje počiva na načelima uzajamnosti i solidarnosti.

Cilj istraživanja je da se na osnovu dosadašnje literature da kratak pregled mogućih vidova osiguranja stanovništva, njegove imovine, nepokretnosti i pokretnih stvari od posledica elementarnih nepogoda.

Zaštita stanovništva od posledica prirodnih katastrofa je globalno pitanje i uvršteno u prioritetnim aktivnostima svih zemalja. Jedna od neophodnih aktivnosti po pitanju ove zaštite je stalno informisanje i obrazovanje stanovništva u vezi osiguranja od eventualnih šteta.

### **Društveno ekonomske posledice prirodnih katastrofa**

Prirodne katastrofe nastaju prirodnim putem, na koje čovek ne može direktno da utiče, a koje prekidaju normalan tok života i rada stanovništva. One izazivaju velike štete, nepredviđenog obima, koji prelazi sve normalne garnice, kako na ljudi tako i na njihovim pokretnim i nepokretnim stvarima. Posledice prirodnih katastrofa nije moguće otkloniti jednostavno na nivou pojedinca, grupe ili zajednice, već je to problem čitave nacije. Prirodne katastrofe možemo podeliti na:

- litosferske (seizmološke): zemljotresi, klizišta, vulkanske erupcije;
- atmosferske (meteorološke): vetar, grad, kiša, sneg magla;
- hidrosferske (hidrološke): poplave, morski talasi, cunami;
- biosferske: suše, epidemije.

Određene prirodne katastrofe zahvataju samo pojedina područja i time narašavaju normalan tok funkcionisanja života i rada ljudi na tom području. Karakteristične nepogode koje se dešavaju na određenom području su požari, poplave, suše, jaki mrazevi, snežne padavine, snežni nanosi i lavine, nagomilavanje leda na vodotokovima, odroni zemljišta i druge pojave takvog obima. Posebno se izdvajaju

zemljotresi od 7 i više stepena po Mercalli-Cancani-Siebergovoj skali, te olujni i orkanski vetrovi od 8 i više bofora. Razvijeni olujni oblaci kumulonimbusi predstavljaju najopasniju atmosfersku pojavu za čoveka i njegovu okolinu. Karakteriše ih jaki pljuskovi kiše i grada, električno pražnjenje i olujni vetrovi, što se ispoljava kao rušilačka snaga prirode.

Postoje brojna istraživanja koja ukazuju da je planetarna ekološka kriza sve veća i opasnija bez obzira na činjenicu pronalazaka savremenije tehnologije. Znači da tehnologija ne može u potpunosti da reši sve ekološke probleme, iako predstavlja proizvod ljudskog rada. Glavni razlog je čovek, odnosno ljudska svest i odgovornost. Briga o odnosu ljudi i prirodnih pojava, počela je kada su čovek počeli da taj odnos narušavaju. To znači da čovek kao društveno biće, koje ugrožava taj odnos, počinje da shvata značaj tih odnosa tek kada su oni ugroženi ili prekinuti. Ljudsko društvo se od trenutka nastanka bori da što racionalnije koristi ograničene resurse koje mu je priroda podarila, sa ciljem njihovog obnavljanja i reprodukovanja, a da time zadovolji svoje potrebe u procesu proizvodnje i potrošnje. Racionalnost takvog odnosa prodradumevala je maksimizaciju koristi od korišćenja prirodnih resursa, kao i njihovu zaštitu od negativnih pojava prirodnih katastrofa.

U 20. veku sa početkom industrijalizacije i ubrzanim razvojem tehnologije, posledice ugrožavanja životne sredine postaju sve veće. To se posebno manifestovalo kroz uništavanje vegetacije, zagađenje vode, vazduha i zemljišta, pojave raznih bolesti kod ljudi, biljaka i životinja, pa sve do genetskih promena. Svest o opasnosti od ekoloških katastrofa krajem 60-ih godina prošlog veka više nije lokalni, nacionalni i regionalni problem, već međunarodno – globalni problem. Ujedinjene nacije su 1972. organizovale Stokholmsku konferenciju na kojoj je usvojena čuvena Stokholmska deklaracija. Deklaracijom su postavljeni temelji za dalju međunarodnu saradnju u oblasti zaštite životne sredine i njeno zakonsko regulisanje, kao i osnovne smernice za delovanje u ovoj oblasti na nacionalnom nivou pojedinih država. Ovo je početak ozbiljnog razumevanja problema degradacije životne sredine. Međunarodni propisi dovode do pojave nacionalnih zakona o zaštiti životne sredine. U Rio de Žaneiru, Ujedinjene nacije su 1992. godine organizovale drugu konferenciju posvećenu globalnom ekološkom problemu. Na ovoj konferenciji je usvojena „Rio deklaracija“ koja predstavlja osnovu za definisanje zaštite životne sredine putem Agende 21 – akcioni plan. U Johaneshburgu u Južnoj Africi održan je treći svetski samit o održivom razvoju. Samit je afirmisao održivi razvoj kao centralni element međunarodne agende i dao novi podsticaj globalnoj akciji u borbi protiv siromaštva i zaštiti životne sredine.

### **Upravljanje rizikom u sistemu integrisane zaštite protiv prirodnih katastrofa**

Pojam rizik se često koristi u različitim stručnim krugovima, posebno u oblasti osiguranja. Sa pravnog aspekta, rizik se odnosi na mogući događaj u budućnosti, koji je neizvestan i nezavisan od isključive volje ugovarača. Sa ekonomskog aspekta, ekonomija ima za predmet sopstvenog istraživanja svaku ljudsku delatnost koja se susreće sa problemom ograničenja u realizaciji ciljeva. Ne postoji jedna za sve

prihvatljiva definicija rizika, bilo da je posmatramo sa teorijskog ili praktičkog aspekta osiguranja. U osiguranju rizik možemo posmatrati sa aspekta prava i obaveza osiguranika i osiguravača. Da bi rizik postojao on mora biti moguć, da njegovim nastupanjem izaziva ekonomsku štetu, mora biti neizvestan i slučajan. Rizici u osiguranju su brojni, u svetu ih ima preko 450 vrsta, njihova težina je veoma različita u datim trenucima čak i katastrofalna. Iz tih razloga rizik ima svoju cenu tj. premiju osiguranja. Osim rizika postoje i drugi štetni aspekti rizika. Neizvesnost pojave gubitaka, zahteva od razboritog pojedinca da se pripremi za njihovu eventualnu pojavu. Neophodno je da se izvrši osiguranje kod osiguravajućeg društva.

Upravljanje rizikom predstavlja naučnu metodu kojom se identifikuje i analizira čista izloženost riziku od gubitka, a obuhvata i tehnike za sprečavanje gubitaka. Kao dodatak osiguranju, upravljanje rizikom upotrebljava druge tehnike za obradu izloženosti riziku, koje uključuju izbegavanje, kontrolu gubitka, zadržavanja rizika i neosiguravajući transfer. Osnovni koraci u procesu upravljanja rizikom su sledeći:

- identifikacija potencijalnog gubitka;
- evaluacija potencijalnog gubitka;
- izbor odgovarajuće tehnike za upravljanje gubicima;
- implementacija i razvijanje programa.

Glavne tehnike za upravljanje štetama su: sprečavanje rizika, kontrola šteta, neosiguravajući transferi i osiguranje. Upravljanje rizikom se definiše kao sistemski proces identifikacije i ocene čistih rizika sa kojima se susreće organizacija ili individua kao i proces selekcije i implementacije velikog broja odgovarajućih metoda i tehnika za sprečavanje ostvarivanja ovih rizika. Prema navedenom, rizici u životnoj sredini predstavljaju opasnost od realizovanja ekonomsko štetnog događaja. Ne može biti rizik u osiguranju događaj neekonomске prirode ili uopšte događaj koji u našem životu ne izaziva ekonomsku štetu, nego ima kao posledicu neke druge negativne pojave. Recimo, petrohemijski kompleks je veoma rizičan sa stanovišta npr. rizika požara i to ne zbog čestih požara na ovim pogonima već i zbog moguće velike ekonomske štete, a čak i mogućih ljudskih žrtava. Da bi bio pokriven osiguranjem rizik se mora ponavljati. Ukoliko se ne ponavlja, ako se ostvaruje na primer jednom u 100 godina, čovek neće osećati potrebu da se osigura od takvog rizika (npr. vulkanska erupcija, pad meteorita, itd.)

### **Ekonomsko pravna uloga osiguranja u sistemu integrisane zaštite**

Reč osiguranje (fr. *Assurance*, engl. *Insurance*, nem. *Versicherung*) u najširem označava sigurnost, poverenje u nešto, zaštitu i obezbeđenje. Drugim rečima, smisao te reči upućuje na svrhu osiguranja koja se redovno sastoji u pružanju neke sigurnosti. Kao „mešovita“ ekonomska i pravna kategorija, osiguranje je predmet ekonomske i pravne nauke. Za ekonomistu, osiguranje predstavlja instituciju čiji je cilj uklanjanje ekonomskih posledica prouzrokovanih nastankom osiguranja nekog slučaja. Zbog

toga će ekonomisti proučavati fondove osiguranja (načine njihovog obrazovanja, čuvanja i uvećanja). Za finansijskog stručnjaka osiguranje je deo finansijskog prava, u okviru kog se posebno razmatra zaštita fondova osiguranja, pitanje uticaja poreskih zakona na delatnost osiguranja, uticaj ostvarenih kamata iz plasmana sredstava i drugo. Osim toga, pravnici se u praksi susreću sa važnim i delikatnim pitanjima koje se tiču nastanka i ispunjenja obaveza osiguravača i osiguranika na osnovu zaključenog ugovora o osiguranju. Sa stanovišta pojedinca, osiguranje je privredni instrument kojim pojedinac zamenjuje mali određeni iznos (premiju) za veliki neizvestan finansijski gubitak (neizvesnost od koje se osiguravamo) koji bi postojao da nema osiguranja. Primarna je funkcija stvaranje suprotne stavke riziku, a to je izvesnost. Osiguranje ne smanjuje neizvesnost u pogledu verovatnoće pojavljivanja gubitka za pojedinca, niti povećava verovatnoću njegovog pojavljivanja, ali smanjuje verovatnoću finansijskog gubitka vezanog uz taj događaj.

U okviru sistema integrisane zaštite, osiguranje predstavlja jedan od ključnih elemenata zaštite građana i imovine. Neophodno je neprekidno raditi na usavršavanju osiguranja, ali isto tako i pomoći svakom neosiguranom građaninu da se edukuje i zaštititi sebe i svoju imovinu. Ukupna godišnja šteta od prirodnih katastrofa kreće se od 50 do 60 milijardi dolara: 32% od poplava, 30% od delovanja tropskih ciklona, 22% od suše, 10% od zemljotresa i 6% od ostalih elementarnih nepogoda. Atmosferske pojave u prirodnim katastrofama učestvuju sa 84%. Ključni razlozi uočenog uvećanja osiguranih šteta u protekle više od tri decenije takođe leže u rastu osiguranih vrednosti u područjima natprosečno izloženim prirodnim nepogodama i osetljivosti dobara na spoljne činioce. U razvijenim zemljama u kojima je sasvim normalna (masovna) pojava osiguranje sopstvene imovine, osiguravajući zavodi će morati da promene politiku prema klijentima koji žive u ugroženim područjima od prirodnih katastrofa. Potencijalne štete su ogromne i pitanje je da li su inače veoma sigurni osiguravajući sistemi u stanju da pokriju takve štete.

Osiguranje kao oblast ljudske aktivnosti koja svoje usluge pruža osiguranicima kako u sferi materijalne proizvodnje tako i van nje, uvek je spremno da nadoknadi štetu nastalu kao produkt osiguranog slučaja. Da bi takvim obavezama u svako doba moglo odgovoriti, bez obzira na vreme i visinu nastale štete, osiguranje mora da poseduje određene fondove. Osiguravajući fond služi da se u svako doba može nadoknaditi šteta koju su izazvale prirodne sile ili drugi rizici predviđeni, tj. pokriveni osiguranjem. Poseban problem u osiguranju predstavlja mogućnost nastanka većeg broja šteta od očekivanog ili posebno velikih katastrofalnih šteta. Kako bi se obezbedilo da i ove štete budu pokrivena, u osiguranju se kombinuju različite tehnike, među kojima bitnu ulogu imaju rezerve sigurnosti. U osiguranju života deo premije koji je naplaćen, a namenjen je isplati obaveza koje će dospeti, odnosno nastati u idućim godinama, zove se matematička rezerva. Ona je deo štedne premije. Matematička rezerva izračunava se posebnim metodama aktuarske matematike. I jedan i drugi osiguravajući fond imaju prvenstveno primarnu osiguravajuću funkciju nadoknadu štete, a sekundarna funkcija im je plasman novčanih sredstava za unapređenje nesmetanog odvijanja tokova reprodukcije, što je u poslednje vreme

veoma značajno, pogotovo kada je likvidnost privrede došla u pitanje. Osiguranje, odnosno fondovi osiguranja, kroz razne vidove plasmana znatno ublažuju nastale teškoće u privredi.

### **Funkcija osiguravajućih društava u sistemu integrisane zaštite**

Da bi se stekao detaljan uvid u način poslovanja osiguravajućih društava, potrebno je sagledati način na koji se definišu prihodi i rashodi osiguravajućih organizacija, i shodno tome, utvrđuje godišnji obračun, godišnji izveštaj o poslovanju, kao i načini utvrđivanja i rasporeda rezultata, utvrđivanja i pokrića gubitaka. Prihodi osiguravajuće organizacije su sledeći: premije osiguranja, premije aktivnih poslova saosiguranja i reosiguranja, drugi prihodi od poslovanja osiguranja, prihodi od finansija, vanredni prihodi i kapitalni dobici. Rashodi osiguravajuće organizacije su: rashodi za štete po osnovu ugovorene sume osiguranja, rashodi za štete po osnovu aktivnih poslova saosiguranja i reosiguranja, rashodi za premije po osnovu pasivnih poslova saosiguranja i reosiguranja, rashodi za preventivu i drugi rashodi od poslova osiguranja, rashodi za obavljanje delatnosti osiguranja i reosiguranja, rashodi finansiranja, vanredni rashodi i kapitalni gubici.

Iako osiguravajuća društva u načelu posluju na isti način kao ostala preduzeća, priroda osiguravajućih transakcija zahteva određene specijalizovane funkcije. Ipak, kod osiguranja, za razliku od ostalih delatnosti, troškovi proizvodnje nisu poznati pri prodaji ugovora, i neće biti poznati sve do nekog vremena u budućnosti, kada polisa ističe. Osnovna razlika između određivanja cene i cenovne funkcije kod drugih delatnosti jeste da cena osiguranja mora biti osnovana na pretpostavkama. Postupak predviđanja budućih gubitaka i budućih troškova i raspoređivanja tih troškova na različite kategorije osiguranika naziva se određivanje cene osiguranja. Premija predstavlja cenu osiguranja. U području imovine i odgovornosti, cene se izvode osnovom statističkih trendova gubitaka koje pribavljaju savetničke organizacije ili ih prikupljaju pojedina osiguravajuća društva. Da bi stvorili prihod od premije, osiguravajuće kuće moraju da predvide zahteve i troškove, i onda da rasporede te pretpostavljene troškove na različite vrste imaoca polisa. Konačna premija koju osiguranik plaća naziva se „bruto premija“ i temelji se na bruto stopi koja se sastoji od dva dela, jedan namenjen za plaćanje gubitka i drugi koji predstavlja poseban doplatka za premiju osiguranja, za pokriće troškova poslovanja.

Osiguranje određenog iznosa za kuću uklanja neizvesnost u pogledu finansijskog gubitka u slučaju požara, poplave, zemljotresa ili klizišta koja su u velikom obimu pojavila u našoj zemlji. Neki ljudi, ipak veruju da je osiguranje na neki način rasipanje njihovog novca, ako se gubici ne dogode i ne izvrši naknada štete. U suštini, osiguranje je metoda distribucije gubitaka. Ono što bi bio neizmeran gubitak pojedincu, raspoređeno je na pravedan način na sve članove (osiguranike), i to je osnova na kojoj osiguranje može postojati. Sa stanovišta države, plaćanje premije životnog osiguranja kumulira sredstva koja imaju značaj štednje, koja je dugoročna, unapred određena i namenska. Zato se ona može upotrebiti kao izvor kreditiranja i investiranja. Od posebnog značaja je osiguranje osiguravača, tj. ustanova

reosiguranja. Ugovor o reosiguranju je takav ugovor kojim se jedna strana – reosiguravač obavezuje da drugoj strani, osiguravaču, plati deo iznosa ili ceo iznos koji je on platio ili treba da plati osiguraniku, a reosiguranik preuzima obavezu da reosiguravaču plati određenu premiju.

Funkciju osiguranja i reosiguranja u svetu i kod nas, obavljaju osiguravajuća društva, zavodi, odnosno akcionarska društva i sl. Osiguravač je pravno lice koje se ugovorom o osiguranju obavezuje da će nadoknaditi štetu tj. isplatiti ugovorenu vrednost osiguranja kada nastane osigurani slučaj. U svetu pa i kod nas, osiguravatelji su različito organizovani zbog specifičnosti društveno-političkog sistema i zavisno od toga kakvu društvenu funkciju obavljaju u domenu osiguranja. U svetu, sinonim organizacije za osiguranje i reosiguranje predstavlja "Lojds." Ono što je širem krugu ljudi, pa čak i onima koji se profesionalno bave osiguranjem ponekad nepoznato, to je da se "Lojds" u svojoj, preko tri veka staroj tradiciji, nikada nije direktno bavio ni osiguranjem, niti reosiguranjem. Njegova prava funkcija je organizovanje poslova osiguranja i reosiguranja ili bolje rečeno, on predstavlja berzu ili organizovano tržište poslova osiguranja i reosiguranja.

Osiguranje je po svojoj prirodi kooperativno. Uprkos činjenici da se osiguravajuća društva i posrednici međusobno žestoko nadmeću, postoje mnoga područja u kojima i društva i posrednici sarađuju. U nekim slučajevima to proizilazi iz ekonomske nužnosti. Mnoge kooperativne organizacije osnivaju i podupiru skup osiguravajućih društava pri izvođenju poslova koji bi značili dupliranje napora, ako bi ih svako zasebno obavljao. U drugim slučajevima, saradnja je zamišljena kao podela rizika između osiguravajućih društava u obliku podele gubitka. Jedno važno područje saradnje između osiguravajućih društava jeste određivanje stopa osiguranja. Savetničke organizacije podržavaju osiguravajuća društva koja opslužuju te organizacije svojim statistikama gubitaka kao podlogom za određivanje stopa. Postoji mnogo rizika čijim bi ostvarenjem nastale štete koje ne bi mogle da nadoknade ni velike osiguravajuće kompanije u svetu, a pogotovo nijedna organizacija za osiguranje kod nas. Iz tih razloga osiguravajuće kompanije ili društva nalaze rešenje putem sopstvenog osiguranja od velikih i skupih šteta. To, tzv. osiguranje osiguranja, naziva se reosiguranjem.

Učešće dva ili više osiguravača u sklapanju jednog ugovora o osiguranju, tako da svaki osiguravač učestvuje u pokriću nastalog osiguranog slučaja srazmerno preuzetom delu iz ugovora o osiguranju, naziva se saosiguranje. Potpisanim ugovorom o saosiguranju svaki saosiguravač u odnosu na osiguranika, u srazmeri preuzetog dela rizika, postaje njegov osiguravač i individualno preuzima svoj deo obaveze prema osiguraniku.

Reosiguranje, tehnika kojom osiguravajuće društvo pribavlja osiguranje od katastrofalnih gubitaka, jedno je od najčešćih oblika saradnje unutar osiguravajuće delatnosti. Reosiguranje je postupak kojim osiguravajuće društvo može izbeći rizik katastrofe u osiguravajućem mehanizmu. Kao što sam naziv govori, reosiguranje je osiguranje osiguravatelja. Osim pojedinačnih ugovornih odnosa između društava,

postoji izvestan broj reosiguravajućih ureda koji međusobno sarađuju. Reosiguranje zapravo ima dve značajne funkcije. Prva, koja je prilično očita, jeste raspršivanje rizika. Osiguravajuća društva su u mogućnosti da izbegnu katastrofalne gubitke prepuštajući deo svakog prevelikog rizika. Nadalje, putem ugovora o reosiguranju dodatnog gubitka, društvo se može zaštititi od jednog gubitka katastrofalnih razmera. Druga funkcija koju reosiguranje ima nije odmah očita. To je finansijska funkcija. Uz stalno povećanje iznosa premija, društvo se suočava sa dilemom, da li posao koji osigurava može biti profitabilan, ili zbog zahteva rezervi za nerealizovane premije, njegov se profit može smanjiti i dostići opasno nizak nivo. Kada direktni osiguravač reosigura deo društvenog posla primenom proporcionalnog reosiguranja, društvo plaća deo premija reosiguravaču. Reosiguravač onda utvrđuje rezerve za nerealizovane premije ili obavezne rezerve za polise i direktni osiguravač je oslobođen držanja takvih rezervi. Kako direktni osiguravač ima troškove unajmljivanja poslova, reosiguravač plaća direktnom osiguravaču naknadu za vođenje poslova. Posao reosiguranja je posao koji se u principu bazira na dugoročnoj saradnji između potpisnika ugovora. To je istovremeno posao u čijim temeljima leži, pre svega, veliko međusobno poverenje.

Funkciju osiguranja i reosiguranja u svetu, obavljaju osiguravajuća društva, zavodi, odnosno akcionarska društva i sl. Kako se i na koji način sprovodi osiguranje u pojedinim zemljama, zavisi najviše od društveno ekonomskog i političkog sistema zemlje. U mnogim zemljama postoji više vrsta osiguravajućih društava koja na bazi konkurentnosti vrše funkciju osiguranja i nazivaju se osiguravači i vrlo je bitna činjenica da je vema malo privrednih i drugih vrsta delatnosti koje su kao što je to osiguranje, u obavljanju svoje funkcije dovoljno slične, bez obzira o kojoj zemlji se radi.

### **Osiguranje u sistemu integrisane zaštite protiv prirodnih katastrofa u Republici Srbiji**

Republika Srbija tokom vremena nastoji da se bori protiv nepovoljnih prirodnih činilaca i da spreči njihovo nastajanje. U slučaju njihovog postojanja odnosno njihovih nepovoljnih dejstava, Republika Srbija makar nastoji da umanjuje njihove štetne posledice. Ekonomske posledice koje nastaju usled delovanja nepovoljnih prirodnih činilaca mogu se uspešno otkloniti osiguranjem lica i imovine kod osiguravajućeg društva. Pošto ispoljavanje rizika poplave može prouzrokovati štete kod velikog broja ljudi i imovine na relativno malom prostoru i tako ozbiljno ugrozi disperziju rizika, ovaj rizik veoma brzo može postati katastrofalni rizik. On može ozbiljno da ugrozi solventnost osiguravača, te se zato mora obezbediti adekvatno reosiguranje. U našoj zemlji sa povećanjem broja i veličine naselja i vrednosti dobara u priobalnim područjima postepeno su se povećavale i štete od poplava i drugih nepovoljnih uticaja vodenih tokova, jer se poplave koje nastaju izlivanjem voda iz rečnih korita mogu, u nekim slučajevima, svrstati u red najvećih prirodnih katastrofa. Vremenom, sistemi odbrane su se usavršavali, a mere za odbranu od poplave i objekti koji su tome namenjeni postajali su sve svrsishodniji.



Teritoriju Republike Srbije karakterišu veoma raznoliki geografski i topografski pokazatelji koji karakterišu pojedine regione i oblasti. Shodno tome postoje i razlike u vrsti rizika izloženosti negativnom dejstvu poplava koje ugrožavaju pojedine regione i oblasti. U *Tabeli 1* prikazane su vrste rizika od poplava koje su karakteristične za pojedine oblasti i regione na teritoriji Republike Srbije.

*Tabela 1 – Vrste rizika od poplava po regionima u Republici Srbiji*

| Oblast / region                                  | Vrsta rizika od poplava         |
|--|---------------------------------|
| Vojvodina  | Ravničarske reke                |
| Centralna Srbija i Kosovo                        | Bujične poplave                 |
| Gradovi uz Dunav i Tisu                          | Ledene poplave                  |
| Vojvodina, Mačva                                 | Visoke podzemne vode            |
| Svi prostori na kojima postoji bespravna gradnja | Poplave zbog neplanskog razvoja |

U našoj zemlji postoje područja koja su svakodnevno zaštićena nasipima od poplava. Na primer Mačva se brani nasipima uz Drinu i Savu i tu je u opasnosti 30.000 hektara, što obuhvata mnogo više sela i infrastrukture nego u Banatu. U slučaju proboja nasipa, na ovom području bi mogla nastati šteta koja se procenjuje na 312 miliona evra. Dunavski nasip između mađarske granice i Novog Sada štiti 160.000 hektara i veliki broj naselja sa 110.000 stanovnika. Po Vodoprivrednoj osnovi Republike Srbije, Novi Beograd je takođe veliki problem jer nema dovoljno zaštite. Kada bi se istovremeno pojavile velike vode na Dunavu i Savi, Beograd bi bio poplavljen, smatraju u Vodoprivredi Srbije.

Sve ovo ukazuje da ne postoji potpuna zaštita od rizika poplave. Jedan od načina da ljudi zaštite svoju imovinu od šteta koje poplava može naneti jeste osiguranje imovine od poplave. Međutim u Republici Srbiji još uvek nije velik broj lica i imovine osiguranih od opasnosti od poplave.

Svedoci smo učestale promene vremena i čestih nepogoda, koje svojom prekomernošću neminovno prouzrokuju štete na poljoprivrednim proizvodima. Pored agrotehničkih mera, u ovakvim uslovima osiguranje poljoprivredne proizvodnje kao njena ekonomska zaštita postaje nužnost. Pod osiguranjem poljoprivrede podrazumevaju se osiguranje useva i plodova i osiguranje životinja. Međutim, osiguranje od poplava može se zaključiti samo kada ne postoji neposredna opasnost od poplava, a usevi i plodovi mogu se osigurati od više vrsta rizika. U poljoprivredi su prirodne katastrofe retke i vrlo često nepredvidive, ali kada se dese, mogu da nanesu ogromnu štetu. Država, opština, humanitarne organizacije će dati određenu

pomoć, ali ona neće biti dovoljna. Jedino pravo pokriće i sigurna nadoknada može se očekivati od osiguranja, naravno ako je blagovremeno zaključeno, jer se tada šteta potpuno nadoknađuje. Najveći osiguranici osiguravajućih kompanija su velika društvena poljoprivredna gazdinstva. Najviše osiguranika je u oblasti useva i plodova i to u Vojvodini. U zapadnoj Srbiji najviše se osiguravaju maline, kupine i drugo voće. Osiguravajuće kompanije poljoprivrednicima nude veliki izbor osiguranja od osnovnih rizika: grada, požara, groma i od dodatnih rizika poplave, oluje i prolećnog mraza. Poljoprivrednici se mogu osigurati preko udruženja proizvođača, kooperacija i zemljoradničkih zadruga. Kod organizovanih oblika poljoprivredne proizvodnje osiguranje se ugovara sa organizatorom proizvodnje, a plaća se 20% po sklapanju polise, a 80% po skidanju useva ili plodova. Predmet osiguranja su sve poljoprivredne kulture, jednogodišnje i višegodišnje biljke, glavni usevi i podusevi. Usevi i plodovi mogu se osigurati od osnovnog paketa rizika (od grada, požara i udara groma), dopunskih rizika (oluje, prolećnog mraza, jesenjeg mraza, poplave i gubitka semenskog kvaliteta) i paketa rizika posle izvršene žetve, odnosno berbe. Polisa osiguranja useva i plodova određuje se na osnovu stope osiguranja za određeno područje, visine osiguranog prinosa i cene proizvoda. Cena se utvrđuje dogovorom i može biti fiksna i važi kako za premiju, tako i za eventualnu štetu. Može da bude tržišna i cena otkupljivača na dan konačnog obračuna. Premija se plaća na sumu osiguranja koja se utvrđuje na osnovu očekivanog prinosa po jednom hektaru i cene po jednom kilogramu. Suma osiguranja po jedinici površine pomnožena sa ukupnom površinom predstavlja sumu osiguranja na koju se primenjuje premijska stopa. Osiguranjem svojih useva i plodova poljoprivredni proizvođači postižu zaštitu svojih poljoprivrednih kultura od mnogobrojnih opasnosti kojima su izloženi tokom godine.

### **Zaključak**

Nastanak organizovanog vida osiguranja i osiguravajućih društava je bio neminovan usled veće potrebe modernog stanovništva za osiguranjem u savremenom svetu. Takvo osiguranje u savremenom društvu podstiče ne samo štednju, već i isplatu odštete, ako se osiguranom licu u periodu u kojem je životno osiguranje zaključio nešto dogodi. U pojedinim zemljama u svetu, pojedican, grupa ili zajednica koja uplaćuje životno osiguranje imaju pravo na poreske olakšice, a pomoću iste polise osiguranja mogu dobiti i razne kreditne prednosti. U poslednje vreme "model solidarnosti", se sve više primenjuje širom sveta. Po navedenom modelu podrazumeva se da su svi pojedinci ugroženi od prirodnih katastrofa i da zato svi oni treba da podnesu jednak teret. Širom sveta pojedini građani uplaćuju u specijalne fondove određeni procenat od svoje plate za osiguranje svojih privatnih poseda, imovine, kuće, stana, automobila i drugih nepokretnih i pokretnih stvari.

Na nivou Republike Srbije takav vid osiguranja nije dovoljno razvijen. Istraživanjem se došlo do podataka da manje od 10% stanovništva uplaćuje premije za životno osiguranje, ili osigurava svoju imovinu stan ili kuću. Država je putem banaka koje odobravaju kredite svojim klijentima, zahtevala da u prioritene uslove za odobravanje kredita uključe nepohodnost takvog vida osiguranja za klijenta i sam predmet

zaduživanja. Iako prirodne katastrofe nastaju neplanirano, bez mogućih predviđanja, evidentno je da se tendencija njihovog porasta može usporiti samo adekvatnim dugoročnim merama zaštite životne sredine. Aktivnosti koje se ubrajaju u takve mere zaštite životne sredine su: smanjenje količine izduvnih gasova, potrošnje fosilnih goriva i razvoja novih tehnologija. Svaka imovina koja nije osigurana, kao i ona koja je loše osigurana smatra se rizikom. Proces upravljanja rizikom kod integrisane zaštite, tačnije kod osiguranja od prirodnih katastrofa, mora da počiva na principima "zdravog razuma", odnosno na zlatnom pravilu upravljanja rizikom: "Ne rizikuj više nego što možeš dozvoliti da izgubiš."

Na kraju može se zaključiti da osiguranje kao vid integrisane zaštite predstavlja najsigurniju tehniku za upravljanje rizikom od neželjenog događaja. Takođe osiguravajuća društva treba da koriste znanje o upravljanju rizicima u samom procesu ugovaranja osiguranja. Istraživanjem je utvđeno da je u narednom periodu neophodno posvetiti više pažnje edukaciji stanovništva o smanjenju rizika putem osiguranja i konkretno njegovom značaj kako za pojedinca tako i za društvo na globalnom nivou.

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## INSURANCE MANAGEMENT IN PROTECTION AGAINST NATURAL DISASTERS

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### **Abstract**

*The solidarity model has recently become more and more prevalent at the global level. According to the mentioned model, all factors have a risk of natural disasters and, accordingly, they should have equal treatment of responsibilities and obligations. Most states in developed countries pay a certain percentage of insurance in special funds for their private properties, houses and cars. This type of insurance in the Republic of Serbia is insufficiently developed, bearing in mind that the country is in transition. Previous research has shown that less than 10% of the total population provides themselves with this type of insurance (life insurance premiums, property, apartment or house insurance...), which is encouraged by the banking sector when approving loans for the purchase of the first real estate. A certain country can counter the growing trend of natural disasters by introducing long-term environmental protection measures. The measures mean the tasks and preventive measures undertaken by the competent persons: reducing the amount of exhaust gases, post fossil fuels, as well as the development of new technologies for environmental protection.*

**Keywords:** *risk, natural disasters, personal and property insurance, environmental protection.*

### **Introduction**

By observation residential property through time and the world which one him surrounds can notice is all the time present smaller or already risk from the natural disaster. On the risk from the disaster who is it's not they will be able to predict they act many factors, on which man can unconsciously influence. In recent times, we have witnessed huge natural disasters that occur due to global climate change and thus adversely affect the available industrial capacities of insurance and reinsurance. Natural disasters are related to geological or climatic unwanted phenomena, such as earthquakes, volcanoes, hurricanes, tornadoes, rain and hail storms. The greatest risk

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is in those phenomena, which cannot be predicted in time, which occur without prior warning from the competent persons and which have catastrophic consequences. Floods, earthquakes, accidents at nuclear plants, facilities and processes with chemically dangerous substances, occurrence of oil spills, pollution of air, water and soil, etc., are considered accidents caused by intensive development and uncontrolled application of technological development. In addition, such accidents have a high degree of danger to the population, their material goods and the environment.

The subject of research includes types of insurance against natural disasters, as a type of environmental protection. Insurance has an economic-legal character, bearing in mind the complexity of procedures applied in one process. It is carried out through certain institutions, which compensate the damage caused by natural disasters to the population, its immovable and movable property. Insurance can also be called an association of citizens, founded by people who are exposed to the risk of possible damage, with the aim of compensating the damage caused to individuals. Insurance is based on the principles of reciprocity and solidarity.

The goal of the research is to provide a brief overview of possible types of insurance for the population, their property, real estate and movables against the consequences of natural disasters, based on the previous literature.

Protecting the population from the consequences of natural disasters is a global issue and is included in the priority activities of all countries. One of the necessary activities regarding this protection is constant information and education of the population regarding insurance against potential damages.

### **Socio-economic consequences of natural disasters**

Natural disasters occur naturally, which cannot be directly influenced by humans, and which interrupt the normal course of life and work of the population. They cause great damage, on an unforeseen scale, which exceeds all normal limits, both to people and to their movable and immovable property. The consequences of natural disasters cannot be eliminated simply at the level of an individual, group or community, but it is a problem of the entire nation. Natural disasters can be divided into:

- lithospheric (seismological): earthquakes, landslides, volcanic eruptions;
- atmospheric (meteorological): wind, hail, rain, snow, fog;
- hydrospheric (hydrological): floods, sea waves, tsunamis;
- biospheric: droughts, epidemics.

Certain natural disasters affect only certain areas and thus increase the normal course of functioning of life and work of people in that area. Characteristic disasters that occur in a certain area are fires, floods, droughts, severe frosts, snowfalls, snow drifts and avalanches, accumulation of ice on watercourses, landslides and other phenomena of such magnitude. Of special note are earthquakes of 7 degrees and above according to the Mercalli - Cancani - Sieberg scale, and storm and hurricane winds of 8 and above Beaufort. Developed cumulonimbus storm clouds represent the

most dangerous atmospheric phenomenon for man and his environment. They are characterized by heavy showers of rain and hail, electrical discharges and stormy winds, which manifest as the destructive force of nature.

There are numerous studies that indicate that the planetary ecological crisis is getting bigger and more dangerous regardless of the fact of inventions more modern technologies. So technology it cannot completely solve all ecological problems, even though it is a product of human work. The main reason is man, that is human consciousness and responsibility. Concern for the relationship between people and natural phenomena began when man began to disturb that relationship. This means that man as a social being, who threatens that relationship, he begins to understand the importance of those relationships only when they are threatened or broken. From the moment of its creation, human society struggles to use the limited resources that nature has given it as rationally as possible, with the aim of restoring and reproducing them, thereby satisfying its needs in the process of production and consumption. The rationality of such a relationship implied the maximization of benefits from the use of natural resources, as well as their protection from negative occurrences of natural disasters.

In the 20th century with the beginning of industrialization and the accelerated development of technology, the consequences of endangering the environment are becoming greater. This was especially manifested through the destruction of vegetation, pollution of water, air and soil, the appearance of various diseases in humans, plants and animals, up to genetic changes. Awareness of the danger of environmental disasters at the end of the 60s of the last century is no longer a local, national and regional problem, but an international or global problem. In 1972, the United Nations organized the Stockholm Conference, where the famous Stockholm Declaration was adopted. The declaration laid the foundations for further international cooperation in the field of environmental protection and its legal regulation, as well as the basic guidelines for action in this field at the national level of individual countries. This is the beginning of a serious understanding of the problem of environmental degradation. International regulations lead to the emergence of national laws on environmental protection. In Rio de Janeiro, the United Nations organized the second conference dedicated to the global environmental problem in 1992. At this conference, the "Rio Declaration" was adopted, which represents the basis for defining environmental protection through Agenda 21 - an action plan. In Johannesburg, South Africa the third world summit on sustainable development was held. The summit affirmed sustainable development as a central element of the international agenda and gave new impetus to global action in the fight against poverty and environmental protection.

### **Risk management in the system of integrated protection against natural disasters**

The term risk is often used in various professional circles, especially in the field of insurance. From the legal aspect, risk refers to a possible event in the future, which is

uncertain and independent of the contractor's sole will. From the economic aspect, economics has as its own research object every human activity that faces the problem of limitations in the realization of goals. There is no one-size-fits-all definition of risk, whether we look at it from the theoretical or practical aspect of insurance. In insurance, we can look at risk from the perspective of the rights and obligations of the insured and the insurer. In order for a risk to exist, it must be possible, for its occurrence to cause economic damage, it must be uncertain and random. The risks in insurance are numerous, there are over 450 types of them in the world, their severity is very different at certain times, even catastrophic. For these reasons, risk has its price, ie. insurance premium. Apart from risk there are other harmful aspects of risk. The uncertainty of the occurrence of losses requires a prudent individual to prepare for their eventual occurrence. It is necessary to take out insurance with an insurance company.

Risk management is a scientific method that identifies and analyzes pure exposure to the risk of loss, and includes techniques for preventing losses. In addition to insurance, risk management uses other techniques to handle risk exposure, including avoidance, loss control, risk retention, and noninsurance transfer. The basic steps in the risk management process are as follows:

- identification of potential loss;
- evaluation of potential loss;
- selection of the appropriate technique for loss management;
- implementation and development of the program.

The main damage management techniques are: risk prevention, damage control, non-insurance transfers and insurance. Risk management is defined as a systematic process of identification and assessment of pure risks faced by an organization or individual, as well as a process of selection and implementation of a large number of suitable methods and techniques to prevent these risks from occurring. According to the above, risks in the environment represent the danger of realizing an economically harmful event. An event of a non-economic nature or an event in general that does not cause economic damage in our life, but has some other negative phenomena as a consequence, cannot be a risk in insurance. For example, the petrochemical complex is very risky from the point of view of e.g. fire risk, not because of frequent fires at these plants, but also because of possible large economic damage and even possible human casualties. In order to be covered by insurance, the risk must be repeated. If it does not repeat itself, if it occurs for example once in 100 years, man will not feel the need to insure himself against such a risk (e.g. volcanic eruption, meteorite fall, etc.).



### **The economic legal role of the insurance in the system of integrated protection**

The word insurance (Fr. *Assurance*, Eng. *Insurance*, German. *Versicherung*) broadly means safety, trust in something, protection and security. In other words, the meaning of the word refers to the purpose of insurance, which regularly consists in providing some security. As a "mixed" economic and legal category, insurance is a subject of economic and legal science. For an economist, insurance represents an institution whose goal is to eliminate the economic consequences caused by the insurance of a certain case. That is why economists will study insurance funds (the ways of their formation, preservation and increase). For a financial expert, insurance is a part of financial law, in which the protection of insurance funds, the question of the impact of tax laws on the insurance industry, the impact of realized interest from the placement of funds and others are considered. In addition, in practice, lawyers face important and delicate issues concerning the origination and fulfillment of the obligations of the insurer and the insured based on the concluded insurance contract. As far as the individual is concerned, insurance is a business instrument by which an individual exchanges a small specified amount (premium) for a large one an uncertain financial loss (the uncertainty against which we insure) that would exist if there were no insurance. The primary function is to create the opposite of risk, which is certainty. Insurance does not reduce the uncertainty regarding the likelihood of a loss occurring for an individual, nor does it increase the likelihood of its occurrence, but it does reduce the likelihood of financial loss associated with that event.

U within the system of integrated protection, insurance represents one of the key elements of the protection of citizens and property. It is necessary to continuously work on improving insurance, but also to help every uninsured citizen to educate himself and protect himself and his property. The total annual damage from natural disasters ranges from 50 to 60 billion dollars: 32% from floods, 30% of the action of tropical cyclones, 22% from drought, 10% of earthquakes and 6% from other natural disasters. Atmospheric phenomena in natural disasters participate with 84%. The key reasons for the observed increase in insured claims over the past three decades also lie in the growth of insured values in areas exposed above average to natural disasters and the sensitivity of goods to external factors. In developed countries where it is quite normal (massive) to insure one's own property, insurance companies will have to change their policy towards clients who live in areas threatened by natural disasters. The potential damages are huge and the question is whether the otherwise very safe insurance systems are able to cover such damages.

Insurance, as a field of human activity that provides its services to the insured both in the sphere of material production and outside of it, is always ready to compensate for damage caused as a product of the insured event. That such obligations could be fulfilled at any time answer you, regardless of the time and amount of damage, insurance must have certain funds. The insurance fund serves to compensate for damage caused by natural forces or other foreseeable risks at any time, i.e. covered by insurance. A special problem in insurance is the possibility of a large number of

damages than expected or particularly large catastrophic damages. In order to ensure that these damages are also covered, various techniques are combined in insurance, among which safety reserves play an important role. In life insurance, the part of the premium that has been collected and is intended for the payment of obligations that will be due or arise in future years is called a mathematical reserve. It is part of the savings premium. The mathematical reserve is calculated using special methods of actuarial mathematics. Both insurance funds have primarily a primary insurance function compensation for damage, and their secondary function is the placement of funds to improve the smooth development of reproduction flows, which has been very significant lately, especially when the liquidity of the economy has come into question. Insurance, i.e. insurance funds, through various types of placement, significantly mitigate the difficulties in the economy.

### **The function of insurance companies in the system of integrated protection**

In order to gain a detailed insight into the way insurance companies operate, it is necessary to look at the way in which the income and expenses of insurance organizations are defined, and accordingly, determine the annual calculation, the annual report on operations, as well as the methods of determining and distributing results, determining and covering losses. The income of the insurance organization is as follows: insurance premiums, premiums of active co-insurance and reinsurance business, other income from insurance business, income from finance, extraordinary income and capital gains. The expenses of the insurance organization are: expenses for damages based on the contracted sum of insurance, expenses for claims based on active co-insurance and reinsurance business, expenses for premiums based on passive coinsurance and reinsurance operations, expenses for prevention and other expenses from insurance business, expenses for carrying out insurance and reinsurance activities, financing expenses, extraordinary expenses and capital losses.

Although insurance companies generally operate in the same way as other businesses, the nature of insurance transactions requires certain specialized functions. However, in insurance, unlike other industries, production costs are not known when the contract is sold, and will not be known until some time in the future, when the policy expires. The main difference between price determination and price function in other activities is that the price of insurance must be based on assumptions. The process of predicting future losses and future costs and allocating those costs to different categories of policyholders is called insurance pricing. The premium represents the price of the insurance. In the area of property and liability, prices are derived based on statistical loss trends obtained by advisory organizations or collected by individual insurance companies. In order to generate income from premiums, insurance companies must predict claims and costs, and then distribute these assumed costs to different types of policyholders. The final premium paid by the insured is called the "*gross premium*" and is based on the gross rate, which consists of two parts, one

intended to pay the loss and the other, which is a special supplement to the insurance premium, to cover operating costs.

Insuring a certain amount for the house removes the uncertainty regarding the financial loss in case of fire, flood, earthquake or landslides that have occurred on a large scale in our country. Some people, however, believe that insurance is somehow a waste of their money, if losses do not occur and compensation is not paid. In essence, insurance is a method of distributing losses. What would be an immeasurable loss to an individual is distributed fairly among all members (insureds), and that is the basis on which insurance can exist. From the state's point of view, paying a life insurance premium accumulates funds that have the significance of savings, which is long-term, predetermined and dedicated. That is why it can be used as a source of credit and investment. Of particular importance is the insurance of the insurer, i.e. reinsurance institution. A reinsurance contract is such a contract by which one party - the reinsurer undertakes to pay the other party, the insurer, part of the amount or the entire amount that he paid or should pay to the insured, and the reinsured undertakes to pay the reinsurer a certain premium.

The function of insurance and reinsurance in the world and in our country is performed by insurance companies, institutes, ie joint stock companies, etc. The insurer is a legal entity that, by the insurance contract, undertakes to compensate the damage, i.e. pay the contracted insurance value when the insured event occurs. In the world, including in our country, insurers are organized differently due to the specifics of the socio-political system and depending on what social function they perform in the field of insurance. In the world, the synonym of the organization for insurance and reinsurance is "Lloyds." What is sometimes unknown to a wider circle of people, and even to those who professionally deal with insurance, is that "Lloyds", in its more than three-century-old tradition, has never directly dealt with either insurance or reinsurance. Its real function is the organization of insurance and reinsurance business, or rather, it represents the stock exchange or the organized market of insurance and reinsurance business.

Insurance is cooperative in nature. Despite the fact that insurance companies and brokers compete fiercely with each other, there are many areas where both companies and brokers cooperate. In some cases, it stems from economic necessity. Many cooperative organizations establish and support a group of insurance companies in carrying out work that would mean duplication of effort if each one were to do it separately. In other cases, cooperation is conceived as risk sharing between insurance companies in the form of loss sharing. One important area of cooperation between insurance companies is determining insurance rates. Advisory organizations support the insurance companies that serve those organizations with their loss statistics as a basis for setting rates. There are many risks, the realization of which would result in damages that could not be compensated even by large insurance companies in the world, and especially not by any insurance organization in our country. For these reasons, insurance companies or companies find a solution through their own

insurance against large and expensive damages. That, the so-called insurance insurance, is called reinsurance.

The participation of two or more insurers in the conclusion of one insurance contract, so that each insurer participates in the coverage of the resulting insured event in proportion to the assumed part of the insurance contract, is called co-insurance. With the signed co-insurance contract, each co-insurer in relation to the insured, in proportion to the assumed part of the risk, becomes his insurer and individually assumes his part of the obligation towards the insured.

Reinsurance, the technique by which an insurance company obtains insurance against catastrophic losses, is one of the most common forms of cooperation within the insurance industry. Reinsurance is a procedure by which the insurance company can avoid the risk of catastrophe in the insurance mechanism. As the name suggests, reinsurance is the insurance of the insurer. Apart from individual contractual relations between companies, there are a number of reinsurance offices that cooperate with each other. Reinsurance actually has two important functions. The first, which is quite obvious, is the spread of risk. Insurance companies are able to avoid catastrophic losses by ceding a portion of any excess risk. Furthermore, through an additional loss reinsurance contract, the company can protect itself against a single loss of catastrophic proportions. Another function that reinsurance has is not immediately obvious. It is a financial function. With the constant increase in the amount of premiums, the company faces a dilemma, whether the business it insures can be profitable, or because of the requirement of reserves for unrealized premiums, its profit can decrease and reach a dangerously low level. When a direct insurer reinsures part of the company's business using proportional reinsurance, the company pays part of the premiums to the reinsurer. The reinsurer then establishes reserves for unrealized premiums or required policy reserves and the direct insurer is exempt from holding such reserves. As the direct insurer incurs hiring costs, the reinsurer pays the direct insurer a handling fee. The reinsurance business is a business that is basically based on long-term cooperation between the signatories of the contract. At the same time, it is a business whose foundation lies, above all, in great mutual trust.

The function of insurance and reinsurance in the world is performed by insurance companies, institutes, ie joint stock companies, etc. How and in what way insurance is implemented in certain countries depends mostly on society economic and political system of the country. In many countries, there are several types of insurance companies that perform the function of insurance on the basis of competition and are called insurers, and it is a very important fact that there are very few economic and other types of activities that are as similar as insurance in performing their functions, regardless what country is it about.

### **Insurance in the system of integrated protection against natural disasters in Republic of Serbia**

Over time, the Republic of Serbia strives to fight against unfavorable natural factors and to prevent their occurrence. In case of their existence or their adverse effects, the Republic of Serbia at least tries to reduce their harmful consequences. Economic consequences arising from the action of unfavorable natural factors can be successfully eliminated by insuring persons and property with an insurance company. Since the manifestation of the flood risk can cause damage to a large number of people and property in a relatively small area and thus seriously threatens the dispersion of the risk, this risk can very quickly become a catastrophic risk. It can seriously threaten the insurer's solvency, so adequate reinsurance must be provided. In our country, with the increase in the number and size of settlements and the value of goods in coastal areas, damage from floods and other adverse effects of water flows gradually increased, because floods caused by overflowing water from riverbeds can, in some cases, be classified among the largest natural disasters. Over time, the defense systems were perfected, and the flood defense measures and the facilities intended for it became more and more expedient.

The territory of the Republic of Serbia is characterized by very diverse geographical and topographic indicators that characterize certain regions and areas. Consequently, there are also differences in the type of risk of exposure to the negative effects of floods, which threaten certain regions and areas. In *Table 1 the types of flood risks* that are characteristic for certain areas and regions on the territory of the Republic of Serbia are shown.

*Table 1 - Types of flood risk by region in the Republic of Serbia*

| Area / region                                 | Type of flood risk                    |
|---|---------------------------------------|
| Vojvodina                                     | Ravnica rivers                        |
| Central Serbia and Kosovo                     | Flash floods                          |
| Cities along the Danube and Tisza             | Ice floods                            |
| Vojvodina, Macva                              | High groundwater                      |
| All areas where there is illegal construction | Flooding due to unplanned development |

In our country, there are areas that are protected from floods by embankments every day. For example, Macva is defended by embankments along the Drina and Sava, and 30,000 hectares are at risk there, which includes much more villages and

infrastructure than in Banat. In the event of a dike breach, damage estimated at 312 million euros could occur in this area. The Danube embankment between the Hungarian border and Novi Sad shields 160,000 hectares and a large number of settlements with 110,000 inhabitants. According to the Water Management Foundation of the Republic of Serbia, New Belgrade is also a big problem because there is not enough protection. If large waters appeared on the Danube and the Sava at the same time, Belgrade would be flooded, according to the Serbian Water Administration.

All this indicates that there is no complete protection against the risk of flooding. One of the ways that people can protect their property from the damage that a flood can cause is to get property flood insurance. However, in the Republic of Serbia, a large number of persons and property are still not insured against the risk of flooding.

We are witnesses of frequent changes in the weather and frequent disasters, which inevitably cause damage to agricultural products due to their excessiveness. In addition to agrotechnical measures, in these conditions, ensuring agricultural production as its economic protection becomes a necessity. Agricultural insurance includes crop and fruit insurance and animal insurance. However, flood insurance can only be concluded when there is no immediate danger of flooding, and crops and fruits can be insured against several types of risks. In agriculture, natural disasters are rare and very often unpredictable, but when they do happen, they can cause enormous damage. The state, municipality, humanitarian organizations will provide some help, but it will not be enough. The only real coverage and secure compensation can be expected from insurance, of course if it is concluded in a timely manner, because then the damage is fully compensated. The largest insureds of insurance companies are large social agricultural farms. Most of the insured are in the field of crops and fruits, in Vojvodina. Raspberries, blackberries and other fruits are mostly insured in western Serbia. Insurance companies offer farmers a wide range of insurance against basic risks: hail, fire, lightning and additional risks of flood, storm and spring frost. Farmers can be insured through producer associations, cooperatives and agricultural cooperatives. In the case of organized forms of agricultural production, insurance is contracted with the production organizer, and 20% is paid upon conclusion of the policy, and 80% upon removal of crops or fruits. The subject of insurance is all agricultural crops, annual and perennial plants, main crops and sub-crops. Crops and fruits can be insured against the basic risk package (hail, fire and lightning strike), supplementary risks (storm, spring frost, autumn frost, flood and loss of seed quality) and the risk package after the harvest. The crop and fruit insurance policy is determined based on the insurance rate for a specific area, the amount of the insured yield and the price of the product. The price is determined by agreement and can be fixed and is valid both for the premium and for any damage. It can be the market price and the buyer's price on the day of the final settlement. The premium is paid on the sum insured, which is determined on the basis of the expected yield per hectare and the price per kilogram. The insurance sum per unit of area multiplied by the total area represents the insurance sum to which the premium rate is applied. By insuring

their crops and fruits, agricultural producers achieve protection of their agricultural crops from the many dangers they are exposed to during the year.

### **Conclusion**

The emergence of an organized type of insurance and insurance companies was inevitable due to the greater need of the modern population for insurance in the modern world. Such insurance in modern society encourages not only savings, but also the payment of compensation, if something happens to the insured person during the period in which the life insurance was taken out. In some countries in the world, an individual, group or community that pays for life insurance has the right to tax benefits, and with the same insurance policy they can get various credit advantages. Lately, the "solidarity model" has been increasingly applied around the world. According to the mentioned model, it is understood that all individuals are threatened by natural disasters and that therefore all of them should bear the same burden. All over the world, individual citizens pay a certain percentage of their salary into a special fund for insurance of their private possessions, property, houses, apartments, cars and other immovable and movable things.

At the level of the Republic of Serbia this type of insurance is not sufficiently developed. The research revealed that less than 10% of the population pays premiums for life insurance, or insures their property, an apartment or a house. The state, through the banks that grant loans to their clients, demanded that the priority conditions for granting loans include the unsuitability of this type of insurance for the client and the subject of borrowing. Although natural disasters occur unplanned, without possible predictions, it is evident that the tendency of their increase can be slowed down only by adequate long-term environmental protection measures. Activities that are included in such environmental protection measures are: reducing the amount of exhaust gases, consumption of fossil fuels and the development of new technologies. Any property that is not insured, as well as those that are poorly insured, is considered a risk. The process of risk management in integrated protection, more precisely in insurance against natural disasters, must be based on the principles of "common sense", that is, on the golden rule of risk management: "Don't risk more than you can afford to lose."

In the end, it can be concluded that insurance as a form of integrated protection represents the safest technique for managing the risk of an unwanted event. Also, insurance companies should use knowledge of risk management in the insurance contracting process itself. The research found that in the coming period it is necessary to pay more attention to education and the population about risk reduction through insurance and specifically its importance both for the individual and for society at the global level.

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