



Focus Area3: Productive water in agriculture and the economy

## **Session Title**

### **3D: Opportunities for financing and private sector involvement**

Schedule: [10 August 2022 (Wed) | 3:00 p.m. - 4:30 p.m. (GMT+08)]

#### **Title:**

**Index insurance of soil moisture for winter crops. Experience of insurance in Kazakhstan via unified online platform.**

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# Introduction

Larger Research question:

How do farmers generate value-added from investing in sustainable uses of water?

Subquestions

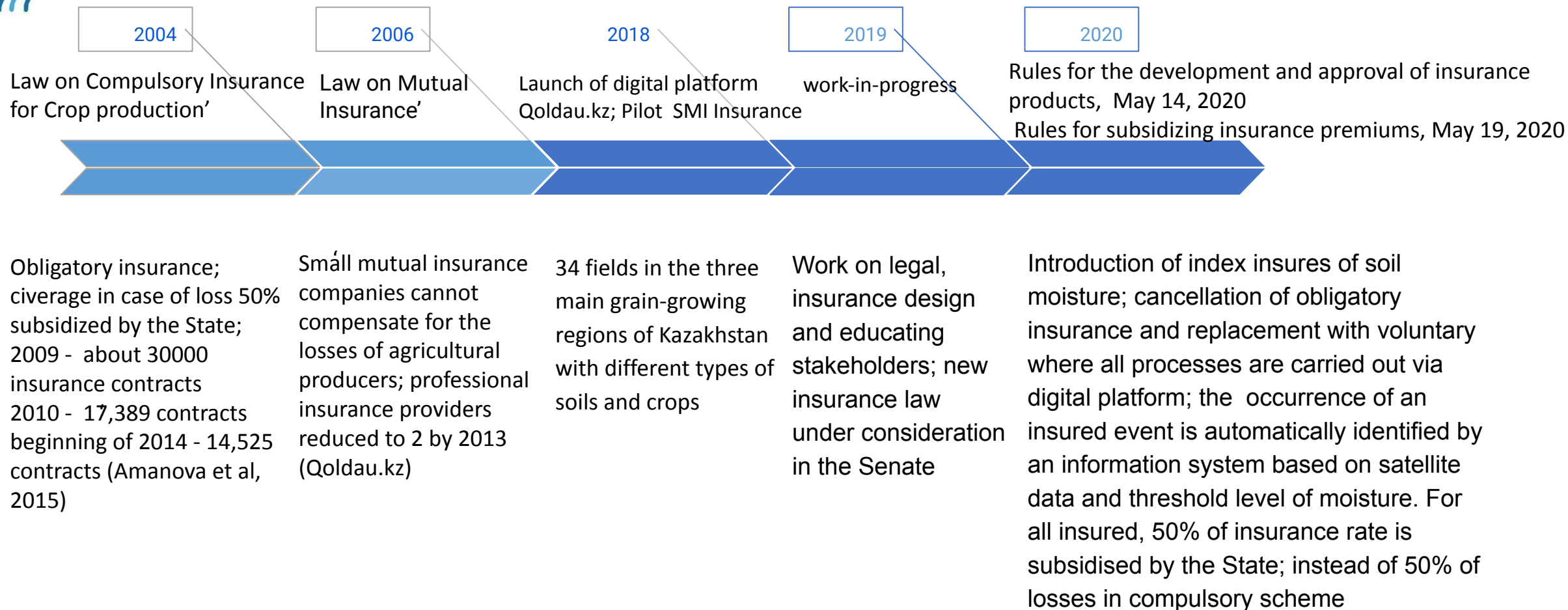
- value-added from investing into sustainable water-land-crop farming
- factors affecting farmers' willingness to invest
- private-sector engagement into greening water use in agriculture

In particular, for the research component to this presentation:

- Farmer ways of linking insurance and benefits with farm's value-added (land-productivity, water-productivity, total-factor productivity, crop yield, return-on-investment, income, etc)
- Farmer rationales for adoption package of two and more insurance offerings; and possibilities to incentivize resource-efficient packages



## Index insurance in Kazakhstan: timeline



North Kazakhstan suffered from drought in 2008, 2010, 2012, 2017 and 2019 due to a lack of soil moisture

# Index insurance in Kazakhstan: core principles

## Insurance

### grain crops

3-phase

2-phase

### oil crops

3-phase

2-phase

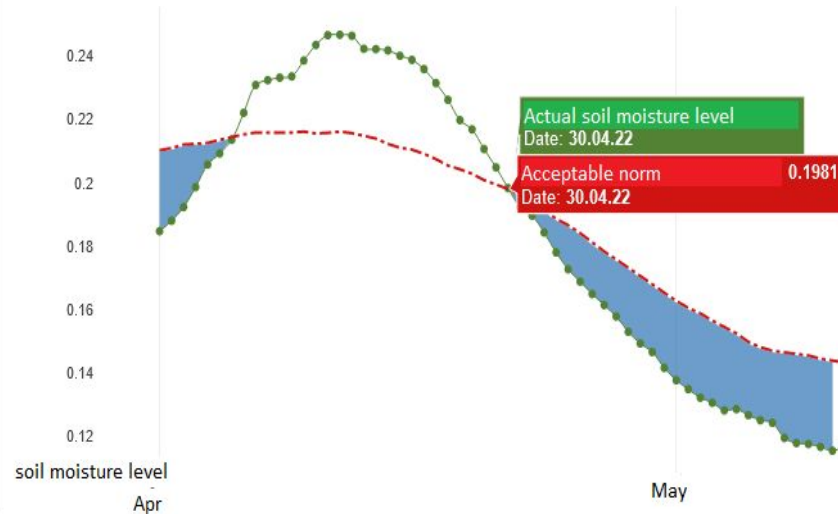
excess moisture in soil

### winter crops

2022

2021

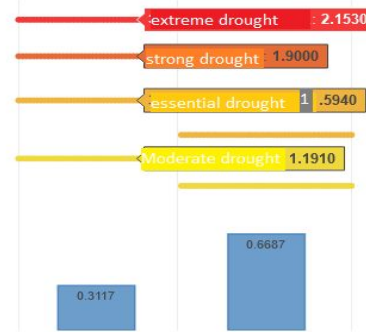
Source: Qoldau.kz- Moisture history Map



— above norm threshold — actual level of soil moisture - - - Acceptable threshold of soil moisture

Фазы:

16 Apr	14 May	16 June
Grain crops	Oil crops	Excess moisture
2-phase	2-phase	
3-phase	3-phase	



Three products:

- Deficit-moisture insurance
- Excess moisture insurance
- Winter crops insurance

Insurance Rates (per ha, based on area standardized cost estimate)

- moisture deficit – 4.8%
- excess moisture in the soil (rain) - 2.43%
- drought insurance (2-phase) – 3.2%

Deficit of soil moisture- max 48% of insurance coverage; excess moisture - max 20%  
In case of non-occurrence of risk 12% of insurance rate is returned to farmers

Threshold levels (triggers) have four levels for drought intensity and two levels for excess moisture. Insurance premium vary accordingly. Levels are adjustable to season, weather, temperature, and other parameters.

Moisture index parameters are informed by satellite data accessible even in cloudy conditions

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Platform fee is about USD20 per year for a range of services including insurance.  
Farmers are sent automatic notification upon each instance of crossing a threshold



# Index insurance in Kazakhstan: adoption

Source: platform Qoldau.kz (Agroinsurance)

					Amount of purchase (50% of full rate), KZT			Number of applications			Insurance premium paid, KZT		
					2020	2021	2022 (June)	2020	2021	2022 (June)	2020	2021	2022 (June)
TOTAL					99 051 337	185 089 073	470 048 785	86	118	172	518 248 971,4	824 711 520,0	0,0
2-Phase	Soil	Moisture	Index	Deficit	40 890 556	31 768 619	28 212 956	56	23	20	243 919 114	112 103 070	-
Insurance for grain crops													
2-Phase	Soil	Moisture	Index	Deficit	2 086 240	11 883 721	6 343 484	3	8	6	144 300	46 880 266	-
Insurance for oil crops													
3-Phase	Soil	Moisture	Index	Deficit	20 681 998	80 964 735	336 554 147		46	101		425 577 691	-
Insurance for grain crops													
3-Phase	Soil	Moisture	Index	Deficit	18 364 546	34 874 889	97 227 156	15	23	44	87 925 269	234 220 345	-
Insurance for grain crops													
3-Phase	Soil	Moisture	Index	Deficit		8 990 841			6				
Insurance for winter crops													
Excess Moisture Index insurance (grain and oil crops)					17 028 004	16 606 261		7	12		9 739 440	5 930 148	



## Index insurance in Kazakhstan: possible co-benefits

Source: ,  
Qoldau.kz-Statistics of  
subsidies

	Number of application submitted	Number of application paid out	Number of application submitted	Number of application paid out	Number of application submitted	Number of application paid out
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Subsidies for

**Water**

**Fertilizers**

**Investment  
into capital assets**

2019	2 485	2 485.	20 675	20 673	23 067	23 071
2020	2 830 .	2 828	23 367	23 358	29 390	29 382
2021	3 399 .	2 903	18 819	16 167	25 517	23 579
2022 (Mar)	Application in progress	Application in progress	1 439 Application in progress	729 Application in progress	9 163	1644

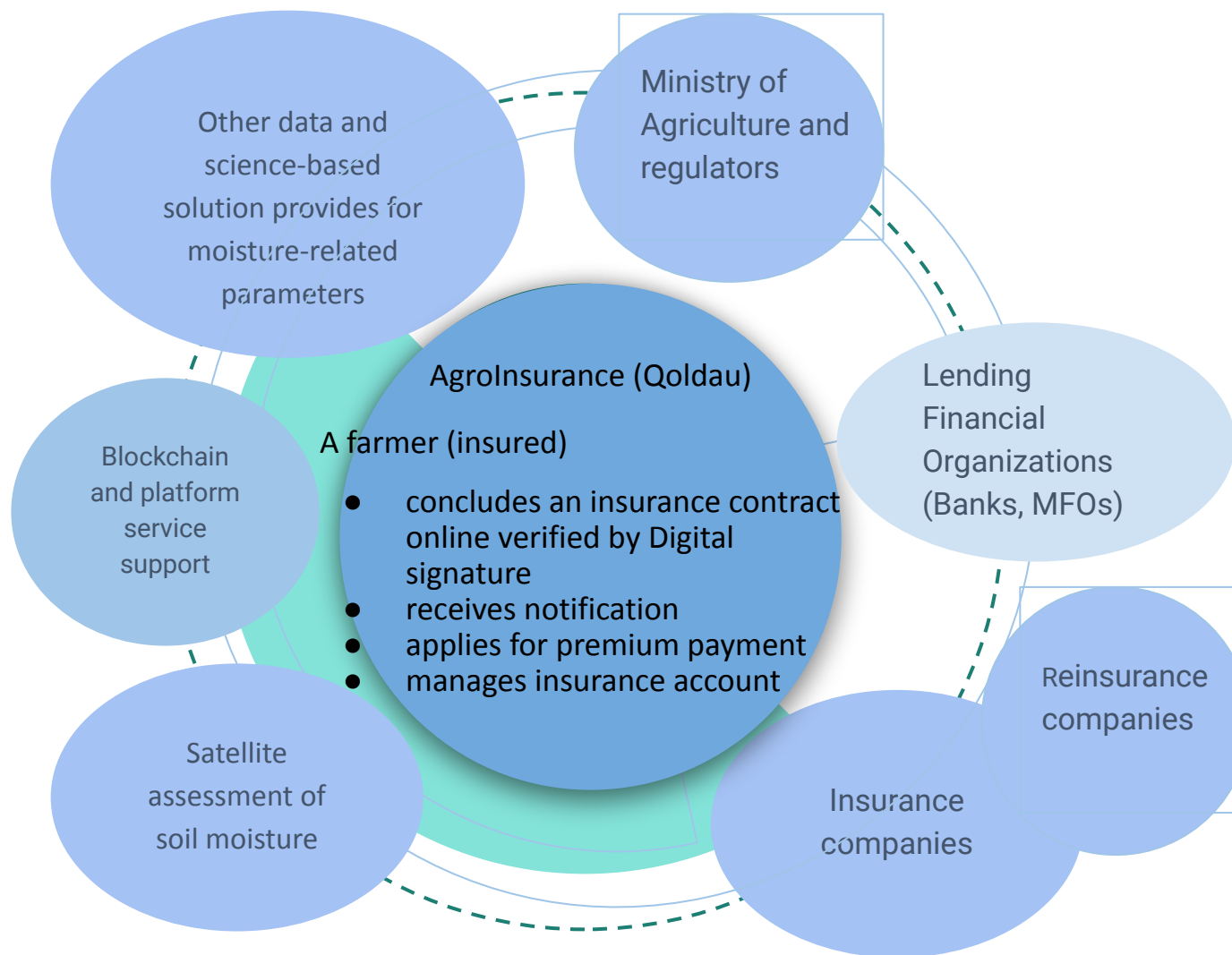
? Farmer ways of  
linking insurance  
and benefits from  
multiple  
investments into  
farm's value-added

Digital mapping of 100%  
of croplands  
Digital Signature via  
E-government  
Blockchain Technology

Farms' adoption of  
subsidies  
Farms' digital literacy  
Farms' production  
technology



## Index insurance in Kazakhstan: unified online platform and participants





## Pointers for future studies

- New insurance product development
- Capturing and validating farms' investment patterns linked with value-added
- Incentivizing finances and stakeholders' participation into investment in water- and resource-efficient farming





## References

- Amanova, G. D., Saduakasova, K. Zh., & Temirova, A. B. (2015). Problems of the system of insurance of agricultural production of the Republic of Kazakhstan. *International Journal of Experiential Education*, (3-4), 335-338. (Аманова Г.Д., Садуакасова К.Ж., Темирова А.Б. Проблемы Системы Страхования Сельскохозяйственного Производства Республики Казахстан // Международный журнал экспериментального образования. – 2015. – № 3-3. – С. 335-338; )
- Choudhury, A., Jones, J., Okine, A., & Choudhury, R. (2016). Drought-triggered index insurance using cluster analysis of rainfall affected by climate change. *Journal of Insurance Issues*, 169-186.
- Li, H., Li, J., Shen, Y., Zhang, X., & Lei, Y. (2018). Web-based irrigation decision support system with limited inputs for farmers. *Agricultural Water Management*, 210, 279-285.
- Al-Maruf, A., Mira, S. A., Rida, T. N., Rahman, M. S., Sarker, P. K., & Jenkins, J. C. (2021). Piloting a weather-index-based crop insurance system in bangladesh: understanding the challenges of financial instruments for tackling climate risks. *Sustainability*, 13(15), 8616.
- Law of the Republic of Kazakhstan “On Compulsory Insurance in Crop Production” dated 10.03.2004 No. 533-II.
- Law of the Republic of Kazakhstan "On Mutual Insurance" dated July 5, 2006 No. 163-III.
- National Bureau of Statistics, Ministry of National Economy <https://stat.gov.kz>
- Law of the Republic of Kazakhstan “On state regulation of the development of the agro-industrial complex and rural areas” July 8, 2005 No. 66
- Law of the Republic of Kazakhstan “On approval of the Rules for the development and approval of insurance products” May 15, 2020 No. 20641.
- Law of the Republic of Kazakhstan “On approval of the Rules for subsidizing insurance premiums” May 19, 2020 No. 17
- Qolday.kz -Agroinsurance-Statistics and Analytics <https://agro-insurance.qoldau.kz/ru/info-start>