



## Making Climate Risk Microinsurance Work

CASE STUDY

**Kenya Agriculture Insurance  
Programme (KAIP) with APA, Kenya**

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## Strategic Need

Kenya is exposed to many climatic risks, the most common being floods and droughts. It is estimated that over 70% of natural disasters in Kenya are attributable to extreme climatic events. Typically, major droughts occur once every 10 years, and moderate droughts or floods once in three to four years. Repeating patterns of floods and droughts in the country have had large socioeconomic impacts and high economic costs.<sup>1</sup> Agriculture is one of the primary occupations and employs around 40% of Kenyans.<sup>2</sup> As of 2020, agriculture, forestry and fishing contributed to 35% of the country's gross domestic product (GDP),<sup>3</sup> making it one of the most important sectors for the country.

This combination of the country's vulnerability to natural hazards and the importance of the agriculture sector explains the need for insurance protection to smallholder farmers against natural calamities and other perils.

## Origin, Objectives and Overview of KAIP

The Kenya Agriculture Insurance Programme (KAIP) was launched in 2015 by the Ministry of Agriculture, Livestock and Fisheries and the World Bank, and has offered an area yield index insurance product<sup>4</sup> since 2016. The programme targets smallholder farmers with typical landholding between 0.25 and 5.00 acres, though the cap is set at 20 acres, and currently covers farmers in 33 of Kenya's 47 counties. The scheme works through a distinctive public-private partnership model, with the private insurers organised as a consortium and working as one entity, rather than bidding against each other as is more commonly seen in government-subsidised crop insurance schemes. Aggregators such as input suppliers and financial institutions have emerged as the primary channel of distribution, with the government being a secondary channel that predominantly exists for the government to be able to interact and showcase the KAIP programme to farmers. The lead insurer of the scheme is APA Insurance (a part of the Apollo Group).

Figure 1 provides an overview of KAIP since 2016.

Figure 1: Overview of KAIP

Policy Terms	2016-present
Premium rate (% of sum insured)	4%-20% Rates vary depending on the season, insured crops, number of counties, location, unit area of insurance (UAI) and average production history for that UAI
Subsidy	Up to 50% of premium is allocated by government through State Department of Agriculture subsidy
Risks covered	Yield shortfall due to drought, excessive rainfall, flooding, uncontrollable pests and diseases, hailstorms and wind
Crops covered	Maize <sup>5</sup>
Seasons covered	Long rains – March to May Short rains – October to December
Voluntary/mandatory	Mandated by some aggregators and distribution channels Voluntary for the rest
Bundling	Bundled along with inputs by some aggregators

It is estimated that over 70% of natural disasters in Kenya are attributable to extreme climatic events.

<sup>1</sup> World Bank Group (2020). Climate Risk Country Profile: Kenya. Retrieved 22 September 2021 from [https://climateknowledgeportal.worldbank.org/sites/default/files/2021-01/15724-WB\\_Kenya%20Country%20Profile-WEB.pdf](https://climateknowledgeportal.worldbank.org/sites/default/files/2021-01/15724-WB_Kenya%20Country%20Profile-WEB.pdf)

<sup>2</sup> Food and Agricultural Organisation of the United Nations. FAO in Kenya. Retrieved 22 September 2021 from <http://www.fao.org/kenya/fao-in-kenya/kenya-at-a-glance/en/>

<sup>3</sup> World Bank. Agriculture, Forestry and Fishing, Value-Added (% of GDP) – Kenya. Retrieved 22 September 2021 from <https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?locations=KE>

<sup>4</sup> An area yield index insurance product pays out claims to all insured farmers in a specified area when the average yield in that area falls below a predetermined level, regardless of the actual yield on each individual client's farm. Average yields are determined via crop cutting exercises.

<sup>5</sup> Maize is major staple crop covered, but in some counties like Kitui, Makeni, Machakos and Tharaka, early maturing and drought tolerant crops like green grams, sorghum and beans are being covered especially during the short rains seasons. The government plans to introduce other crops like potatoes in counties where the crop is a major one.

## Pricing

Each aggregator (including the government as one aggregator) is considered an account, and each account has its own range of premium rates which are reviewed each season. To this end, data is made available by aggregators for geographies in which they distribute KAIP and by the government in areas where it distributes KAIP directly.

For nongovernment accounts, Pula,<sup>6</sup> a technical assistance provider based in Kenya, does the pricing and crop cutting exercises, and the specific reinsurer(s) for each aggregated account ratifies the pricing. For the government- distributed account (which brings in about 10% of premiums), pricing is done by the specific reinsurer (currently Africa Re) and the crop cutting exercises are done by the Kenya Bureau of Statistics.

## Subsidy

Premiums are subsidised by the central government through the State Department of Agriculture. The government typically awards a total budget for two years (four seasons) at a time. In 2019, it awarded about USD 1.7 million for 2019 short rains, 2020 long and short rains, and 2021 long rains. Once the total two-year budget is determined, the government announces an allocation from this budget for each season, on a rolling basis, after enrolment is completed.

“Advanced crop cutting methods have reduced costs in terms of efficiency, and improved value in terms of quality of data collected”



### INSIGHT: USING ADVANCED CROP CUTTING METHODS TO REDUCE COST LOADING

*KAIP employs a “state-of-the-art method of collecting crop yield data, using statistical sampling methods, GPS-tracking devices, and mobile phones.”<sup>7</sup> Data from crop cutting exercises are collected via mobile device and relayed in real time. APA reports that this technology has reduced costs in terms of efficiency and improved value in terms of quality of data collected. As a result, loadings on the premiums are kept at a minimum.*



### CHALLENGES

1. In recent times, with expansion of the KAIP programme, the government's subsidy budget has fallen short of being able to cover all enrolled farmers.
2. The subsidy budget per season is not known prior to enrolment. The government typically allocates an amount retrospectively once farmers have been enrolled for a season. This has caused operational issues, where 50% of premiums have been collected from the farmers as their subsidised rate. If that amount is not matched by the government (maybe because it wants to retain more for future seasons), then some or all farmers stand to receive 50% of claims amounts. The consortium must then decide how to allocate the subsidy in a practical and fair manner.

### POTENTIAL SOLUTIONS

1. Insurers underwriting KAIP have requested the government to increase the subsidy budget. The matter is under consideration.
2. To address the uncertainty, the insurers are encouraging aggregators to collect 100% premium from their customers, with an understanding that they will return 50% if they receive a payment from the government. However, very few farmers are able to pay the full premium amount, and aggregators are also not able to pay the full amount for their clients. Thus, as an alternative, insurers have added a clause in their policy contracts which states that if aggregators have collected 50% of the premium and the government doesn't pay the other 50%, then only 50% of the claims amount would be paid.

<sup>6</sup> The Pula website is available at <https://www.pula-advisors.com/>

<sup>7</sup> World Bank (12 March 2016). Kenyan farmers to benefit from innovative insurance program. Press release. Retrieved 22 September 2021 from <https://www.worldbank.org/en/news/press-release/2016/03/12/kenyan-farmers-to-benefit-from-innovative-insurance-program>

## Delivery Model

In Kenya, because no single insurance company had the capacity or experience to insure a large group or area alone, seven insurance companies established a consortium with the support of the government and the World Bank and launched the KAIP programme.<sup>8</sup> Their common motivation was to insure vulnerable populations and increase resilience of Kenyan agriculture. The other motivation was to have a fairly large retention to show the reinsurers a seriousness by the local industry to take sizeable risk. The consortium is led by APA Insurance, which, in addition to the social motivation, also sees the programme as an investment in developing a future client base.<sup>9</sup>



### CHALLENGE: ESTABLISHING A WORKING RELATIONSHIP BETWEEN SEVEN PRIVATE INSURERS<sup>10</sup>

*"It was initially challenging to bring together seven companies with distinct management styles and differing expectations and motivations," but APA management says the setup is actually relatively simple, and the relationships are collaborative. There is a pooling agreement in place that all members follow. The consortium established a clear organisational structure consisting of a management board (with the CEO from each insurer) to deal with strategic planning and a technical committee to supervise day-to-day operations. The technical committee consists of technical experts and agronomists from each member and meets twice monthly so that everyone is up to date and can participate in joint decision-making.*

Figure 2: Partners in KAIP

Partners	2016	2017	2018	2019	2020
<b>Insurers</b>					
APA	●	●	●	●	●
Kenya Orient	●	●	●	●	●
CIC	●	●	●	●	●
AMACO	●	●	●	●	●
UAP Old Mutual	●	●	●	●	●
Jubilee	●	●	●	●	●
Heritage	●	●			
Geminia					●
<b>Donor</b>	World Bank				
<b>Distribution channels</b>	1. Aggregators such as One Acre Fund, Kenya Seed Company, Apollo Agriculture 2. Government <ul style="list-style-type: none"> <li>• Staff of insurance companies</li> <li>• Agronomists</li> <li>• Government officials from Ministry of Agriculture</li> </ul>				
<b>Reinsurer(s)</b>					
Swiss Re	●	●	●	●	●
Africa Re			●	●	●
SCOR Re			●	●	●
Continental Re				●	●
Hannover Re					●
<b>Technical assistance providers</b>	Pula Advisors				

<sup>8</sup> Merry, A. Shah, S., & Dalal, A. Case Brief: APA Insurance. International Labour Organisation. Retrieved 22 September 2021 from <http://www.impactinsurance.org/sites/default/files/CB16%20-%20EN.pdf>

<sup>9</sup> APA Insurance, the flagship company of the Apollo Group (Apollo Investments Limited), was formed after the merger of the general insurance businesses of Apollo Insurance Company and Pan Africa Insurance. With a combined experience of over 100 years (Pan Africa since 1946 and Apollo since 1977), APA has become the largest insurance firm in Kenya and underwrites general insurance risks such as motor, agriculture, marine and microinsurance.

<sup>10</sup> Some content from this box sourced from: <http://www.impactinsurance.org/sites/default/files/CB16%20-%20EN.pdf>

## Insurers

In addition to the social impact and marginal financial benefits of the consortium model, the model has also facilitated capacity building and knowledge sharing. To address the microinsurance expertise gap that was present when the scheme began, the seven member insurers each contributed experts to a technical committee, which was tasked with analysing various aspects of the programme. All consortium members benefited from this joint expertise. Simultaneously, the consortium has gradually retained more of the risk.

Over time, the consortium has built enough expertise to extend the model to Uganda. Many of the insurer members of KAIP also operate in the Ugandan insurance market, and therefore have transferred knowledge and lessons learned intra-regionally from the Kenyan experience. Similar to KAIP, the Ugandan crop insurance programme is also based on subsidies from the government.



### INSIGHT: EVERY CONSORTIUM NEEDS A LEAD

*APA is the lead insurer in KAIP. It leads the consortium operations, from managing pricing to reinsurance. APA allocates responsibilities to each member, such as training and awareness, or crop cut audits (ensuring that crop cutting exercises follow procedure and are credible). It also takes a lead in risk retention. For example, during the long rains in 2020, the consortium had six members and, of the risk retained by insurers, APA's share was 20% and the other five members had 16% each. During the short rains in 2020, when the membership increased to seven, APA's share was 16% and other members had 14% each. The risk is pooled and divided among the insurers in the proportion of shares.*

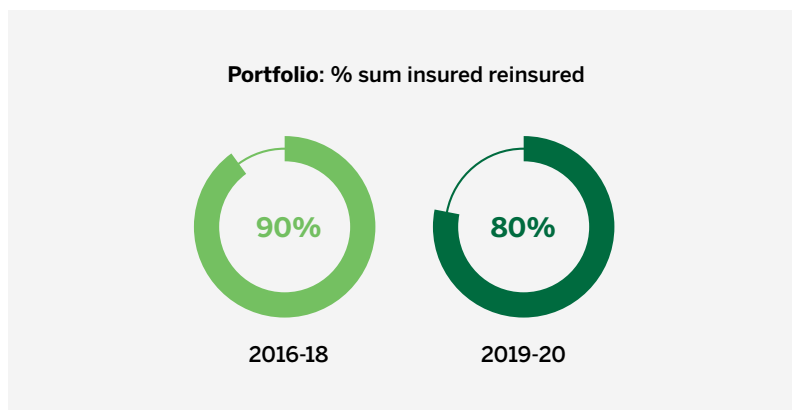
*To compensate this role, APA charges an administration fee of 5% from the premium retained by the insurers. While this has translated into a very small amount thus far, APA expects it to be substantial when the KAIP programme grows. Also, learnings from administering the programme could be beneficial to APA's other climate risk initiatives.*

## Reinsurers

Swiss Re was the first reinsurer that came on board to support KAIP when it was launched. Subsequently, as the risk underwritten increased, more reinsurers were included. Typically, each aggregator account under the KAIP programme is priced and reinsured separately.

As shown in **Figure 3**, initially the total consortium's retention rate was only 10%, with the remainder of the risk passed to reinsurers, via a quota share arrangement. Within three years, this has doubled to 20%, and there is some discussion by the technical committee of increasing it further in the future (up to 30% risk retention). Given this, it is clear that the insurer capacity-building activities of the consortium have strengthened the agricultural insurance market in Kenya.

**Figure 3: Reinsurance**



<sup>11</sup> See the Pula website at <https://www.pula-advisors.com/>

## Distribution Channels

Aggregators have emerged as the primary channel of distribution, contributing to around 90% of premiums. Most of them bundle insurance with inputs or input loans. For example, One Acre Fund and Apollo Agriculture bundle insurance with input loans, and Kenya Seed Company bundles it with input purchases. The other 10% of premium volume is accounted for by government distribution. Here, insurers train government officers and agronomists in their counties on topics such as product education and awareness, premium computation and claim settlements, and then work together to sensitise and enrol farmers.

## Technical Assistance Provider

Pula is an agricultural insurance and technology company that designs and delivers innovative agricultural insurance and digital products to help smallholder farmers endure yield risks, improve their farming practices, and bolster their incomes over time.<sup>11</sup> For aggregated schemes under KAIP, Pula aids with product design and pricing, client onboarding and crop cutting exercises. For these services, Pula receives fees beside a commission.

## Performance

The efficacy of a crop insurance programme can be measured using three parameters: coverage, client value and sustainability.<sup>12</sup>

### Coverage

As can be seen from **Figure 4**, the KAIP programme has been growing at around 50% year-on-year since 2018. In 2020, around 0.75 million farmers were insured under KAIP, which is about 20% of the estimated 3.5 million small-scale crop farmers in the country.<sup>13</sup> The current plans estimate growth covering up to 1 million farmers in 2021. These numbers contribute a negligible proportion of the total business done by each of the consortium members in terms of premium volume. Outreach of the scheme is largely considered to be constrained by available subsidy, though the insurers do expect minimal growth on an unsubsidised basis as well.

**Figure 4: Performance**

Portfolio	2016	2017	2018	2019	2020
Total number of policies sold/clients covered	542	208,186	337,242	498,406	753,470
Total annualised gross collected premiums (USD) <sup>14</sup>	10,751	736,438	1,079,096	1,673,061	2,658,585
Average premium per client (USD)	20	4	3	3	4
Total annualised sum insured (USD)	117,072	3,770,643	19,721,029	24,569,805	35,678,367
Average sum insured per client (USD)	216 <sup>15</sup>	18	58	49	47
Average premium rate (gross premiums / total sum insured) <sup>16</sup>	9.2%	19.5% <sup>17</sup>	5.5%	6.8%	7.5%

## 2. Client Value

The intrinsic value of a crop insurance product lies in the extent, spread and efficiency of financial protection it offers to farmers from the pool created through collection of premiums. These values can be assessed through the claims ratio (ratio of claims paid to premiums collected) as well as the claims incidence (proportion of farmers receiving payouts as against the total number of farmers insured).<sup>18</sup>

**Figure 5** shows the claims ratio and incidence rate of the KAIP portfolio since inception. As can be expected, there is wide variance in claims ratios year-on-year, in accordance with the weather each year (e.g., 2016, 2018 and 2020 were good years from a climate perspective).

According to APA, the entire claim in 2017 came from one heavily impacted region in Kitui county. Hence, the claims incidence was

low while the claims ratio was high. This was a learning point for the consortium members and resulted in the pricing becoming more conservative in 2018, in that the long-term average yields used to determine the payout triggers were adjusted such that claims would be less likely to trigger. The year 2018 was also a good one climate-wise and resulted in a low claims ratio and claims incidence. In 2019, both seasons were average in terms of climate and weather events, resulting in a high claims ratio and low incidence rate, again due to a few heavily impacted areas. In 2020, the long rains season was good for farmers and no claims were submitted. The 2020 short rains season also should have a low volume of payouts, though not all payouts had been established at the time of publication, due to delays in crop cutting exercises with some accounts. Over the period, the five-year aggregate claims ratio is at 36%, with claims incidence of 3%.

<sup>12</sup> Arman Oza (December 2020), The Insurance Times.

<sup>13</sup> Kenya Agricultural Sector Transformation and Growth Strategy, p. 62. Retrieved 22 September 2021 from <http://extwprlegs1.fao.org/docs/pdf/ken189053.pdf>

<sup>14</sup> Includes both premiums paid by farmers and the subsidised portion from the State Department of Agriculture.

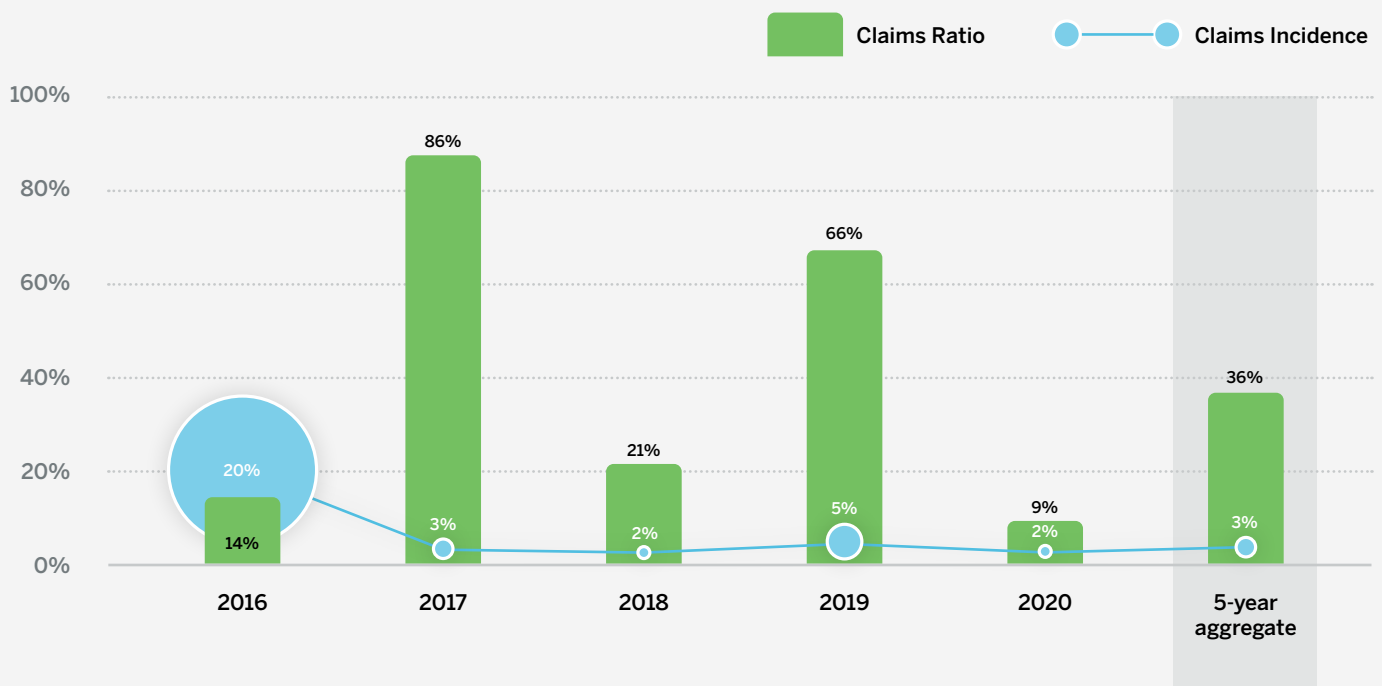
<sup>15</sup> The large drop in average sum assured between 2016 and 2017 can be attributed to the fact that 2016 was a small-scale pilot year in which the counties involved had very high long-term average yield, and thus higher sums insured. The following years have expanded to reach more, smaller-scale, lower-yielding farmers.

<sup>16</sup> Changes in average premium rates over time are due to differing mixes in the portfolio in terms of crops covered, location, production histories of the various unit areas of insurance (UAs) enrolled, and other variables.

<sup>17</sup> The high average premium rate in 2017 was due to a learning curve on understanding yield data and properly incorporating long-term average yields into the pricing.

<sup>18</sup> Arman Oza, op cit.

Figure 5: Claims Ratio and Claims Incidence



The table in **Figure 6** shows details of KAIP's claims experience.

Figure 6: Claims Experience

Claims Experience	2016	2017	2018	2019	2020 <sup>19</sup>
Number of paid claims	111	6,007	7,022	25,321	14,221
Average claim amount (USD)	13	106 <sup>20</sup>	32	44	18
Total amount of claims paid (USD)	1,468	633,787	224,478	1,105,107	250,223

### 3. Sustainability

A crop insurance programme's sustainability depends on whether there is reasonable profit for insurers and distributors on one end, and clear value for farmers on the other. Combined ratios of the scheme are a good measure of profitability because they consider all the outflows (expenses and claims) and inflows (premium). Distribution and other expenses of the scheme ranged from a combined 21% to 40% of retained premiums over the five-year period. As can be seen in **Figure 7**, in three of the five years, the consortium of insurers has made significant profits, and in the other two years they have made minimal or

no profits. Another factor in the sustainability of the scheme is the reliability of subsidies. In the absence of the subsidy, the consortium either requests the full premium to be paid out of pocket, or correspondingly reduces the sum assured. Both of these approaches maintain the target claims ratios, but they reduce value for farmers, and as a consequence take-up rates may decline. With reduced scale, as well as potentially extra costs associated with managing these strategies, expense ratios are likely to increase, negatively impacting sustainability.

<sup>19</sup> Claims payouts for 2020 have not yet been completed. Claims for voluntary sales run by the government officials haven't yet been paid because crop cut results for the season are yet to be received. Also, some of the aggregators have received 50% claims, which will be increased to 100% once payout is received from the government, if it actually is received.

<sup>20</sup> The average payout in 2017 was much higher because a max payout was triggered in a UAI that had insured very high yields (and thus higher than average sums insured).

Figure 7: Estimated Combined Ratios for the Insurers in the Pool, 2016-2020<sup>21</sup>

Year	Claims Ratio (claims paid by consortium / retained premiums)	Distribution Cost Ratio <sup>22</sup> (as % of retained premium)	Other Expense Ratio (as % of retained premium) <sup>23</sup>	Estimated Combined Ratio (claims paid + distribution costs + other expenses / retained premiums)
2016	14%	10% - 20%	11% - 20%	35%-54%
2017	86%			107%-126%
2018	21%			42%-61%
2019	66%			87%-106%
2020	9%			30%-49%
5-year Aggregate	36%	10% - 20%	11% - 20%	57%-76%

## Key Learnings

KAIP is still in its early years, covering a fraction of Kenyan farmers but growing substantially year on year. Sales from KAIP are not yet substantial for any of the participating insurers, but have allowed them to learn and build capacity while keeping risk low. Some key lessons from the KAIP programme include:

### 01

#### Building capacity by sharing

The consortium model is quite an efficient way to ensure that the Kenyan insurance industry gains experience of crop insurance instead of just one or two individual insurers with deep pockets.

### 02

#### Finding the right delivery partners

Aggregators have been very effective in enrolling farmers in KAIP, even during the COVID-19 pandemic. Because they are heavily involved with local farming communities and provide inputs of various kinds, bundling insurance with their inputs has helped the aggregators as well as their farmer clients reduce their risks. The consortium is continually looking for aggregating partners and is also exploring the use of digital technologies to facilitate marketing and enrolment and reduce transaction costs.

### 03

#### Reducing dependence on government

With expansion of the programme, government subsidies have fallen short and come late, causing operational issues. Additionally, there are delays in conducting crop cutting experiments and hence claims payouts for the government account. As a result, the consortium has decided to reduce its dependence on government by trying to convince aggregators to collect or pay premiums in full (e.g., not rely on the 50% subsidy). It remains to be seen if this will be sustainable in the long run.

### 04

#### Building awareness of farmers

One of the greatest challenges for the consortium has been lack of awareness by the farmers of the benefit of insurance. The consortium is working on ways to improve awareness, with the belief that this will improve take-up.

<sup>21</sup> Figure 7 does not account for the consortium's income from undisclosed commissions or fees received from reinsurance arrangements, which are added to the retained premiums. Therefore, the combined ratios estimated here are conservative.

<sup>22</sup> Expenses related to enrolment, marketing and education.

<sup>23</sup> Includes client management fees (payable to Pula where applicable), crop cutting fees, audit fees, APA's administration fees etc.



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