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1 **Envisioning more effective delivery of custom feeding programs using participatory**
2 **approaches: lessons from Eastern Cape Province, South Africa**

3

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11 **Abstract**

12 In South Africa, livelihoods of smallholder cattle farmers are constrained by a lack of
13 appropriate production knowledge, climate change, inadequate support services, societal
14 inequity, irrelevant pro-poor policies and inappropriate delivery of improved livestock
15 technologies. A transdisciplinary team of local and international researchers conducted a
16 workshop to explore opportunities and constraints to the delivery of a beef cattle custom
17 feeding programme in Eastern Cape Province using participatory approaches, including
18 visioning exercises. The main challenges to the cattle custom feeding programme reported by
19 producers included lack of cattle production skills, lack of technical knowledge on feed
20 production, limited funding and inconsistent cattle feed delivery. Participants envisioned a
21 portfolio of locally-based solutions that included prioritisation of local feed production,
22 identification of sustainable support networks, establishment of a communal herd to cover
23 feeding centre's overhead costs and creation of a knowledge exchange platform for farmers. In
24 addition, participants attempted to strengthen knowledge transfer among stakeholders through
25 the development of an online site for knowledge exchange. Overall, the participatory
26 approaches adopted empowered participants to freely express their opinions and openly share
27 knowledge and experiences regarding common challenges and opportunities associated with
28 delivery of a beef cattle custom feeding programme.

29

30 **Keywords:** Cattle, participatory approach, custom feeding programme, smallholder farmers,
31 visioning exercise.

32 **1.0 Introduction**

33 In the smallholder farming sector of South Africa, cattle form an integral part of the sustainable
34 food system, significantly contributing to household food, nutrition, income and social security
35 through intra and inter-community trading (Ndoro et al., 2014; Mapiye et al., 2009).
36 Smallholder beef cattle farmers in South Africa are increasingly being encouraged to contribute
37 to national food, nutrition and income security by selling cattle into formal markets (Marandure
38 et al., 2017). However, these farmers still face a host of challenges in attempting to engage
39 with formal markets, including a lack of understanding and potential distrust of formal markets,
40 inadequate livestock support services, enactment of irrelevant pro-poor policies and
41 inappropriate delivery of improved livestock technologies designed to enhance their productive
42 capacity (Mapiye et al., 2009; Ndoro et al., 2014). For this reason, projects are being developed
43 in many smallholder communities to address these recognised shortcomings and enhance the
44 contribution of cattle to local livelihoods and the national economy (Marandure et al., 2017).
45 One such initiative is the beef cattle custom feeding programme pioneered by the Department
46 of Rural Development and Land Reform (DRDLR) and the National Agricultural Marketing
47 Council (NAMC) in the Eastern Cape Province of South Africa (Nyhodo et al. 2014).

48

49 The Eastern Cape Province supports about 25% of the national cattle herd of which 60% is
50 under smallholder farmer ownership but only contributes 2% to the formal beef market
51 (Mapiye et al., 2009). The custom feeding programme is intended to integrate communal beef
52 producers into formal markets by improving the quality and volume of cattle prior to marketing
53 (Marandure et al., 2017). Under the programme, individual cattle producers voluntarily send
54 their cattle to a communal custom feeding centre, where they are managed and fed a subsidised
55 grain-based commercial diet for up to four months prior to marketing (Marandure et al. 2017).
56 The programme has now been active under NAMC auspices since 2009, at nine communities

57 within Eastern Cape Province. Local producers directly benefit from high income realised from
58 selling well-conditioned cattle, which enhances their livelihoods (Myeki et al. 2014).
59 According to Marandure et al. (2016) indirect benefits of custom feeding include reduced
60 grazing pressure in the rangelands, centralised cattle marketing centre and reduced
61 manipulation of cattle producers by speculators among others. Custom feeding centres also
62 provide jobs such as, feeders, record keepers, financial and security personnel for the local
63 community (Marandure et al. 2016). However, no systematic attempt has been made to
64 understand stakeholder perceptions of how the programme is being delivered, what it has
65 achieved from a community perspective and how, if at all, this might be improved.

66

67 Integrated perspectives regarding delivery and progress of livestock-based projects can be
68 obtained from stakeholders, particularly producers and key informants, through participatory
69 approaches (Fraser et al., 2006; Lisson et al., 2010). According to Dauphin, (2001), a
70 participatory approach refers to ‘a partnership which is built upon the basis of dialogue among
71 the various actors, during which the agenda is jointly set, and local views and indigenous
72 knowledge, skills and resources are deliberately sought and respected’ in the design of
73 interventions. Participatory approaches, therefore, empowers locals to independently own and
74 share development outcomes and consequently break the dependency mentality usually
75 associated with local communities. This implies that participants take the role of actors during
76 problem identification, designing of alternatives and implementation of new technologies,
77 instead of beneficiaries role, thereby, eliminating the dominance usually imposed by
78 researchers (Kezar & Maxey 2016). However, there is little evidence of the long-term
79 effectiveness of participation to achieve the overall goal of improving living conditions of
80 vulnerable people and be considered as a means for social change (Mubita et al. 2017).

81

82 Contrary to the common notion that planning and implementation of development programmes
83 is best done with full participation of the local population, critics argue that it has become an
84 act of faith that people believe in and rarely questions (Guijt 2014). The major criticism is on
85 the failure of participatory methodologies to challenge the bureaucratic structures that control
86 decision-making and resource allocation (Guijt 2014). Lack of influence on the bureaucratic
87 structures through participation translates to cosmetic empowerment of locals. Participation is
88 sometimes used by development practitioners as a ‘window dressing’ procedure to rubberstamp
89 or legitimize their agenda under the guise that they originated from the locals(Barakabitze et
90 al. 2017). Participation is often associated with complex, technical procedures, thus, is
91 deliberately disregarded by most development practitioners who often focus their attention on
92 funding organisations and are in a hurry to complete their projects and achieve outcomes
93 (Mubita et al. 2017).

94

95 The paradigm shift from advocacy to designing methodologies that effectively reflect
96 perspectives and voices of the vulnerable members of society gave birth to different
97 participatory approaches (Campbell 2017). Focus group-based knowledge sharing and
98 planning, SWOT analysis and visioning mapping exercises, in particular, provide options that
99 enable inclusive and active participation irrespective of literacy levels and expressive styles
100 (Mubita et al. 2017). For example, in a visioning exercise, participants collectively and actively
101 create images diagrams, sketches or models that graphically present current problems and guide
102 the process of designing solutions (ODI 2009; Mississauga 2014). A workshop was, therefore,
103 conducted in the Eastern Cape Province of South Africa using focus group discussions, SWOT
104 analysis and visioning mapping exercises to evaluate smallholder farmer challenges and
105 opportunities in the delivery of the beef cattle custom feeding programme.

106

107 **2.0 Methodology**

108 2.1 Workshop location

109 The workshop was conducted in Cala (31°31'0"S, 27°42'0"E) in Eastern Cape Province of
110 South Africa over a period of three days from the 13th to the 15th September 2016. This venue
111 was chosen because of its central location in relation to the three custom feeding centres that
112 were the focus of the workshop (Figure 1). The workshop participants were from the villages
113 of Gxwalubomvu (32°1'12"S, 27°45'6"E) and Ncorha (31°49'00"S, 27°44'00"E), and small
114 farms around the town of Elliot (31°31'30"S, 27°83'70"E) in Eastern Cape Province.
115 Gxwalubomvu and Ncorha communal custom feeding centres are located in Intsika Yethu
116 Local Municipality of Chris Hani District Municipality, about 80 km East of Queenstown
117 (Figure 1). Both communities have operational beef cattle custom feeding centres, which
118 mainly sell cattle through informal markets. Elliot, home to the Ikhephu commercial custom
119 feeding centre, is located in Sakhisizwe local municipality about 120 km north-east of
120 Queenstown (Figure 1). Ikhephu commercial custom feeding centre was constructed to benefit
121 commercially-oriented cattle producers, resettled on surrounding private farms as part of the
122 government Land Redistribution for Agricultural Development (LRAD) programme. This
123 custom feeding centre is mainly linked to the formal red meat value chain through commercial
124 abattoirs.

125

126 2.2 Selection of workshop participants

127 Invitations were sent out to cattle producers from Gxwalubomvu, Ncorha and Ikhephu
128 communities through their community leaders. Project participants included seven cattle
129 farmers and one technical intern from Gxwalubomvu, four cattle farmers and one technical
130 intern from Ncorha. Ikhephu commercial custom feeding centre was represented by two cattle
131 farmers, one custom feeding programme manager, one technical intern and one student intern.

132 Three animal scientists from Stellenbosch University in South Africa, two agroecologists and
133 one social scientist from Centre for Agroecology, Water and Resilience (CAWR) at Coventry
134 University in the UK and one independent community development consultant from Canada
135 also attended the workshop. Overall, nine of the 25 workshop participants were females
136 comprising of five cattle farmers from Gxwalubomvu (three) Ncorha (one) and Ikhephu (one),
137 three technical interns from Gxwalubomvu (one) and Ikhephu (two) as well as one researcher
138 from Stellenbosch University.

139

140 2.3 Workshop strategy

141 The workshop was conducted for three days. Each day and activity was facilitated by one of
142 the project team members with communication between the project team and participants
143 undertaken in English but translated into the local Xhosa language. Participant discussions
144 were grouped by custom feeding centre, with the opportunity for attendees from different
145 feeding centres to interact over lunch, during reporting of findings and in the free time allocated
146 before and after the formal agenda for each day. Discussions were undertaken in a language in
147 which the group felt comfortable but reporting of findings both orally and in written format
148 (using flipcharts) was undertaken in English, with translation of oral reports into Xhosa.

149

150 The workshop began with introductions by participants and a brief overview of its purpose.
151 The remainder of the workshop on days one and two was then themed around three main sets
152 of activities. Firstly, focus group discussions were initiated when communities were divided
153 into three groups by custom feeding centres and asked to discuss and present (using flipcharts)
154 the main issues (constraints as well as best practice) associated with the functioning of their
155 custom feeding centres. As a guideline, they were asked to consider political, institutional,
156 economic technical and infrastructural issues.

157

158 The second activity was a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis
159 of each of the custom feeding centres and sharing of the outcomes from this analysis through
160 flipchart presentations as outlined by Marta-Costa and Costa (2011). Thirdly, participants
161 engaged in a ‘visioning’ stakeholder mapping exercise (ODI 2009), which involved analysing
162 existing linkages between all stakeholders currently involved in each custom feeding centre .
163 The visioning exercise was the linking exercise between the articulation of the ‘issues’ and the
164 ‘solutions’ that the communities collectively arrived at, based primarily on rethinking local
165 actor networks associated with the custom feeding programmes. Participants were asked to
166 produce a diagram indicating their perception of the relationship, benefits and level of
167 interaction between their custom feeding centre and each of the stakeholders. In the diagram,
168 the distance between the custom feeding centre and the stakeholder represented the strength of
169 the relationship, such that stakeholders positioned closer to the custom feeding centre indicated
170 a strong relationship and those positioned far away reflected a weak relationship (Hovland
171 2005). Participants were also asked to draw up a list of additional stakeholders they were
172 interested in forming relationships with in the longer term.

173

174 Based on the issues identified through focus group discussions, the visioning exercise and the
175 SWOT analysis, the participants then engaged in a discussion on potential solutions to the
176 challenges facing the custom feeding centre programmes and identifying the stakeholders who
177 might be important in achieving these solutions. The participants then revisited their group
178 stakeholder mapping diagrams, and identified some of the changes they envisioned might be
179 realised by introducing new actors and by modifying relationships with existing actors
180 (Hovland 2005). On the final day the participants visited Ikhephu commercial custom feeding
181 centre in Elliot.

182 **3.0 Results**

183 3.1. Challenges identified

184 3.1.1 *Technical challenges*

185 Participants from Gxwalubomvu and Ncorha custom feeding centres reported lack of
186 understanding of cattle farming as a key constraint. In particular, technicians were limited in
187 their capacity to undertake routine cattle management practices, such as dehorning, deworming
188 and vaccination when animals were brought to the custom feeding centres. Participants from
189 Ikhephu custom feeding centre reported a lack of basic equipment to undertake these practices,
190 rather than a lack of knowledge. Participants mentioned that some producers took advantage
191 of the relaxed entry conditions at Gxwalubomvu and Ncorha custom feeding centres to bring
192 animals that were too old and/ or too sick for finishing. In some cases, these custom feeding
193 centres were being used to sustain old, sick and vulnerable animals and safeguard animals
194 during drought. In contrast to the communal custom feeding centres, Ikhephu commercial
195 custom feeding centre technicians were confronted with the challenge of farmers bringing
196 animals that were too young and which had to stay in custom feeding centres for longer periods.
197 The introduction of a weighing scale at Ikhephu commercial custom feeding centre was
198 reported to have minimised the problem of farmers bringing young animals to the feeding
199 centre.

200

201 Participants from Gxwalubomvu and Ncorha custom feeding centres who depend entirely on
202 the subsidised commercial feed provided by NAMC reported frequent delays in feed delivery
203 and cattle going for extended periods of time without feed. At times cooperative funds were
204 used to purchase emergency feed to avoid animal weight loss and deaths. Inadequate
205 knowledge of feed budgeting was reported by participants from all the three feeding centres.
206 Participants from Gxwalubomvu and Ncorha custom feeding centres also indicated frequent

207 cases of diarrhoea and bloat in their herds that they blamed on the high-grain, low-forage
208 commercial diet delivered by NAMC.

209

210 3.1.2 *Infrastructural challenges*

211 Participants from Gxwalubomvu and Ncorha highlighted infrastructural challenges including
212 inadequate shelter and/or leaking roofs at the feeding centres which allowed rain water to
213 contaminate the feed. Ncorha participants reported that their feeding centre was not well-
214 fenced, thus, animals from outside were gaining entry and consuming feed meant for cattle at
215 the feeding centre. Gxwalubomvu and Ncorha technicians also complained about the poor state
216 of the roads leading to the custom feeding centres, as well as an absence of roadside signposts
217 to give directions to the feeding centre locations. Ikhephu technicians highlighted that their
218 custom feeding centre is located on a windswept area of grassland and is, therefore, vulnerable
219 to destruction by natural fires.

220

221 Water scarcity and lack of proper water facilities were reported as a serious problem at all the
222 sites. There was, however, hope at Ncorha village of addressing the problem of water scarcity,
223 as the government had initiated a community-based irrigation programme. The programme
224 involved increasing the capacity of Ncorha dam and installing water access facilities to the
225 whole community, and it was hoped that this will be extended to the custom cattle feeding
226 centre.

227

228 3.1.3 *Institutional challenges*

229 Participants from all the three custom feeding centres mentioned that veterinary support was
230 expensive and limited as the local veterinary officer often lacked access to a vehicle for regular
231 visits or emergencies. In addition, government extension and veterinary officers required

232 payment to visit members of the custom feeding centre. The payment was often beyond what
233 the farmers could afford. Participants also expressed concern about inadequate security which
234 left animals in the custom feeding centres vulnerable to theft. In fact, Ikhephu participants
235 highlighted escalating cases of cattle theft from the custom feeding centre as a key threat to its
236 operation, discouraging farmers from bringing animals. This was despite that the centre is well
237 fenced and has day and night security guards. Other institutional challenges raised include
238 inadequate operational budgets and late payment of custom feeding centre staff salaries by the
239 responsible local government departments.

240

241 3.1.4 *Economic challenges*

242 All the participants acknowledged the lack of effective marketing strategies for both the formal
243 and informal beef markets. Participants from Gxwalubomvu and Nchora found it easier to sell
244 into the informal markets, which instantly paid more money than the formal market.
245 Gxwalubomvu and Nchora participants also mentioned lack of access to formal credit and
246 insurance due to high interest rates, lack of collateral and capacity to pay.

247

248 3.1.5 *Political challenges*

249 Gxwalubomvu and Ncorha participants reported that some community leaders, with no interest
250 or understanding of the custom feeding programmes, lacked the political will to support them.
251 Furthermore, some non-programme members grazed their livestock within the premises of the
252 custom feeding centre at night arguing that the resources were provided by the government
253 and, therefore, should benefit all members of the community. This was said to escalate during
254 drought years as farmers became desperate to provide feed for their animals. At Ikhephu
255 commercial custom feeding centre some politically-connected individuals were able to flout
256 the custom feeding centre regulations for the benefit of their livestock. There was also

257 resentment and jealousy from some farmers who actively encouraged people not to make use
258 of the custom feeding centre. This was linked to the ongoing tension between farmers due to
259 lack of access to resources by non-members.

260

261 3.2 The visioning exercise outcomes

262 Participants at Ncorha suggested that the operation of their custom feeding centre currently
263 involved a fairly limited network of six main actors namely; Department of Agriculture,
264 NAMC, Rural Development, Local Municipality, District Municipality and Stellenbosch
265 University. They perceived their closest relationships were with the Department of Rural
266 Development and Land Reform (DRDLR), the local municipality and NAMC. In envisioning
267 an alternative actor network, they suggested there would be added value in expanding their
268 actor network to include close relationships with the Expanded Public Works Programme
269 (EPWP), the National Youth Development Agency (NYDA) and DRDLR. In contrast, this
270 would see the weakening of existing relationships with NAMC and the local municipality.
271 Relationships with DRDLR remained strong and those with Department of Agriculture
272 Forestry and Fisheries (DAFF), the District Municipality and Stellenbosch University (SU),
273 remained quite distant.

274

275 As with Ncorha, participants from Gxwalubomvu perceived a fairly limited actor network
276 currently involved in the custom feeding centre operation. This involved close relationships
277 with the local community, NAMC and DRDLR, weaker relationships with EPWP through the
278 local municipality and Department of Rural Development and Agrarian Reform (DRDAR) and
279 distant relationships with SU and East London Abattoir. In envisioning their alternative actor
280 network, participants suggested expanding this considerably by developing additional close
281 relationships with the following governmental actors: National Emergent Red Meat Producers

282 Organisation (NERPO), NYDA, Department of Trade and Industry (DTI), Small Enterprise
283 Development Agency (SEDA) and the Small Enterprise Finance Agency (SEFA; Figure 3B).
284 The DTI, SEDA and SEFA were primarily viewed as potential sources of additional finance
285 for the custom feeding centre. The relationships with DRDLR and NAMC were slightly
286 weakened in this new network, while the relationship with SU became much stronger.
287 Relationships with the local community, the EPWP and the DRDAR remained unchanged.

288

289 Participants from Ikhephu perceived a much wider network of eleven actors currently involved
290 with the commercial custom feeding centre, in comparison with the other custom feeding
291 centres. Close existing relationships were recognised with National Development Agency
292 (NDA), the Integrated Planning and Economic Develop (IPED) programme of Chris Hani
293 District Council (CHDC), NAMC, DRDLR, DRDAR, EPWP and Andrew's Abattoir. More
294 distant relationships existed with Farm Vision, Chris Hani Development Agency (CHDA) and
295 CHDC. There was a very distant relationship with the Agricultural Sector Education Training
296 Authority (AgriSETA). The alternative network they envisioned, involved a closer relationship
297 with the farmers and the different cooperatives within Ikhephu, as well as with private
298 companies such as the Old Mutual insurance company and with Oos Vrystaat Kaap (OVK)
299 Coop. These new relationships underpin the potential solutions (Table 1) that they considered
300 to mitigate existing challenges in service delivery, and provide different forms of support (e.g.,
301 technical and financial support). In contrast, they envisage weakened relationships with
302 government actors such as NAMC, DRDLR and DRDAR, whilst relationships with all other
303 actors remain essentially unchanged.

304

305 3.3 Knowledge exchange platform

306 Given the considerable knowledge gap between technicians and farmers as well as long
307 distances between the feeding centres and the transport limitations, it was agreed that an online
308 forum for knowledge exchange be created to continue sharing best practices. The logic was
309 that technicians and commercial farmers who are more knowledgeable and commercially-
310 focused will feel a desire to share this understanding with farmers from communal areas. In
311 light of this, a Facebook page named ‘Knowledge Exchange Platform for Emergent Livestock
312 Farmers’ was created to facilitate continued discussions beyond the workshop, the URL for
313 which is: [https://www.facebook.com/Knowledge-Exchange-Platform-for-Emergent-
314 Livestock-Farmers-1169312599795740/](https://www.facebook.com/Knowledge-Exchange-Platform-for-Emergent-Livestock-Farmers-1169312599795740/).

315

316 **4. Discussion**

317 The differences in existing understanding of cattle farming knowledge may be because, unlike
318 Gxwalubomvu and Ncorha custom feeding centres, Ikhephu commercial custom feeding centre
319 had the facilities, equipment and college trained personnel with knowledge of animal
320 production, feed production, diet formulation and feed budgeting. As a result of the differences,
321 it was clear that the knowledge shared during the workshop was not among equals as Ikhephu
322 technicians contributed a lot more than participants from the custom feeding centres. Finding
323 ways to share this technical knowledge between the different farmer groups therefore became
324 an important focus of the workshop. Although, an in-depth gender (Kristjanson et al. 2010) or
325 social analysis (Gaviglio et al. 2016) was beyond the scope of this study, it is agreed that such
326 analyses would reveal the context of the communities under study and help to develop
327 appropriate strategies for participation criteria (Mubita et al. 2017).

328

329 The lax entry conditions reported at the custom feeding centres, have previously been reported
330 by Marandure et al. (2017), who attributed it to a limited understanding amongst stakeholders

331 of the rationale for establishing the custom feeding centres. Limited understanding is reflective
332 of lack of consultation of all stakeholders including local cattle producers during the design
333 and implementation stages of the projects. In fact, communal cattle producers are using custom
334 feeding centres as facilities to dispose of vulnerable animals whose value has depreciated due
335 to sickness and/or old age (Myeki et al. 2014). Following the discussion of specifications for
336 cattle entry to the feeding centres, participants from Gxwalubomvu and Ncorha custom feeding
337 centres undertook to set stricter rules that prevent entry of old and sick animals and to limit the
338 time spent by cattle in the custom feeding centre to the recommended maximum of four months.
339 The adoption of more stringent controls over cattle entry requirements to the custom feeding
340 centres, however, might ultimately limit the range of cattle owners who engage with them,
341 thereby, limiting the resultant livelihood benefits. To improve financial sustainability of the
342 custom feeding centres, participants resolved to raise membership fees and cattle entry fees
343 and to re-think their business plans to reduce their dependence on government subsidies.
344 Participants from Ikhephu further suggested the adoption of insurance for animals at custom
345 feeding centres as a potential solution for reimbursing owners for animals lost through death
346 or theft when in the feeding centre. They argued that adding a small amount to membership
347 fees would enable the custom feeding centres to take out insurance policies that compensate
348 owners for losses.

349

350 Disposing animals which are no longer productive ties well with the livelihood objectives of
351 most smallholder livestock farmers in communal areas where productive cattle provide
352 offspring, milk, draft power, a form of insurance and a live bank among other benefits
353 (Siegmond-schultze & King 2011). This suggests that either the rationale for these types of
354 feeding centres needs to be rethought or, if the focus on the original objectives is retained, then
355 the user group needs to be more strictly controlled to focus on those who can actually supply

356 animals that meet the programme's specifications. The latter course would necessarily be much
357 less inclusive and risk benefitting only those who already have larger herds. These issues might
358 have come to the fore had the local cattle producers been given an opportunity to participate
359 during the planning stages of this program. Even then local cattle producers would need to be
360 in a position where they are able to negotiate and engage with power holders so that they can
361 make binding decisions. According to Campbell (2017), participation does not directly
362 translate to empowerment as this differs in context from community to community.

363

364 The delays in feed supply as well as in payment of workers at the feeding centres may be due
365 to bureaucratic processes that is consistent with government services and was previously
366 criticised by Siegmund-schultze and King (2011) for stalling designed programs. Failure to
367 change the bureaucratic processes is viewed as one of the leading limitations of participatory
368 methodologies (Mubita et al. 2017). The virtual power presumed to exist in participatory
369 methodologies was also criticised by Datta et al. (2015) who argued that the credibility of the
370 methodologies is only due in instances where evidence of redistribution of power in where
371 previously excluded social groups are given power to control and influence development
372 outcomes.

373

374 With regards to feed challenges, all participants from the custom feeding centres suggested
375 exploring ways to produce their own feed locally, thereby reducing dependence on commercial
376 feed supplied by the government. This would involve using land in their respective
377 communities to grow maize and relevant forages such as Lucerne, which would be utilised in
378 the feeding centres. However, this would require support in terms of land, irrigation, fodder
379 production, and feed formulation know-how. Additional equipment would also be required in
380 Gxwalubomvu and Ncorha including a hammer mill and other equipment necessary for feed

381 processing. This links well with on-going research by Stellenbosch University within these
382 communities aimed at formulating lower-cost diets using locally-based feed resources for the
383 custom feeding programme.

384

385 Some of the solutions advanced were closely linked to the alternative actor networks the
386 communities envisaged they would like to develop. For example, to address the serious
387 challenge of operational budget shortages, the participants suggested that alternative funding
388 strategies be sought. Priority was directed towards sourcing funds from other government
389 departments or government funded organisations, such as SEDA and SEFA as well as private
390 companies and non-governmental organisations. Ikhephu participants suggested a particularly
391 novel and interesting approach to improving the commercial viability of their feeding operation
392 based on greater input from existing cooperative members. Their suggestion was that each of
393 the 156 farms serviced by the Ikhephu custom feeding centre could donate a cow to create a
394 communal herd that would be held at the custom feeding centre and collectively owned by the
395 cooperative members. The collective herd could be used in future to assist farmers by leasing
396 or selling animals back to the farmers. Furthermore, the income from the regular sale of animals
397 from the herd could be pooled and put towards the running costs of the custom feeding centre
398 in terms of feed, veterinary expenses and administrative costs, including staff salaries. If well-
399 managed, this approach could potentially make custom feeding centres self-sustainable and
400 provide cattle producers with greater returns.

401

402 The sustainability of custom feeding centre cooperatives will also be dependent on an effective
403 management structure. In this regard, participants stated that cooperatives members should
404 genuinely be dedicated and willing to contribute time, effort and appropriate levels of funding.
405 Such dedication on communally owned assets or projects, however, seldom exist in all

406 individuals of a community. In most cases each individual would wish to benefit as much as
407 possible while contributing as little as possible, a phenomenon known as ‘tragedy of the
408 commons’(Dube et al. 2016).This was extended to the authorities in charge of custom feeding
409 centres who were accused of sometimes being too busy to hold meetings and of favouritism.
410 Regular meetings, transparency and accountability will be critical in enabling committees to
411 be more effective in resolving the issues raised. Ultimately, the committee must have the
412 authority to address local mismanagement and corruption and increase awareness amongst both
413 members and non-members of the operational goals and regulations of custom feeding centres.
414

415 Participation, often expressed as the view of the poor or marginalised members of society
416 sometimes conceals existing micro-politics where development is hindered by power relations
417 at a local level (Mubita et al. 2017). The lack of political will reported in Gxwalibombvu and
418 Ncorha could be a result of convergence on power struggles between feeding centres’
419 administration committees and local politicians. Usually local politicians and the traditional
420 leadership possess the power of overseeing all activities in their local communities as they want
421 to be seen as drivers of development at a local level. The politicians and traditional leadership
422 might have felt infuriated and threatened of losing power to administrative committees who
423 are probably driven by a livelihood-based agenda. Consultation of all stakeholders during the
424 design stage of the custom feeding program would have been critical to raise awareness of the
425 intentions of the program and its administrative structures. Otherwise, using existing structures
426 of local power in fostering participation can reinforce existing inequalities instead of
427 stimulating the desired social change (Mubita et al. 2017). Local power relations are often
428 overlooked or treated superficially in development programs resulting in deliberate disregard
429 of program activities through active sabotage (Guijt 2014). Individuals will also align

430 themselves and act in solidarity with respective power groups as reflected by reports of some
431 people discouraging farmers from using the feedlot at Ikhephu feedlot.

432

433 Comparing the outcomes from all three custom feeding centres, it is important to note that in
434 all cases participants envisaged a weakened relationship with NAMC in the alternative actor
435 network. It is not immediately clear why this was so. It could be a pragmatic recognition of the
436 fact that the custom feeding centres are tasked with becoming independent after five years of
437 operation and alternative sources of support need to be found. It may be partly connected to
438 delayed service delivery, particularly of animal feed. There was also a clear split between the
439 custom feeding centres and the Ikhephu commercial custom feeding centre in the additional
440 actors they wished to forge close relationships with. For the communal custom feeding centres,
441 the new actors were all either government funded agencies or departments, whereas for
442 Ikhephu they were either the farmers themselves or private companies. It is clear that in
443 considering their longer-term sustainability, the communal custom feeding centres still see a
444 strong input from government, whereas Ikhephu is keen to diminish reliance on government
445 by drawing more directly on input from their members and supplementing this with input from
446 the private sector.

447

448 It is crucial to facilitate improved linkages between the custom feeding centres and the
449 organisations they envisioned having closer links with. This needs on-going efforts from the
450 managers of the custom feeding centres to identify who will be responsible for creating and
451 maintaining these links. As part of the resolutions, the workshop report was circulated to key
452 organisations and departments mentioned by participants, including: NAMC, DRDAR,
453 DRDLR, NERPO, NDA, CHDA, DTI, SEDA and SEFA. Circulation of the workshop report
454 to the key stakeholders was seen as a good start to initiate these links.

455

456 The approach taken in the workshop enabled the development of trusting relationships between
457 participants and researchers, albeit in a very short space of time. As a result, participants felt
458 able to freely express their views. In fact, participants took a leading role in thoroughly
459 evaluating the constraints to effective functioning of custom feeding centres. In-turn the
460 researchers also gained insight into common challenges associated with the custom feeding
461 centres and the suggestions for rectifying them as well as the visions of participants

462

463 Most importantly, it was enlightening to see some participants empowering each other through
464 knowledge exchange. Knowledge ownership and sharing which was openly demonstrated by
465 participants during their presentations and subsequent discussions is according to Campbell
466 (2017), an important aspect of participatory research that allows participants to engage as
467 collaborators and removes the notion of research being oppressive to them. Positioning the
468 three communities as equal partners in the research was also more likely to encourage them to
469 embrace the findings from the workshop(Masset & Haddad 2015)(Masset & Haddad 2015).
470 However, the risk of more powerful elite local individuals exerting their dominance in the
471 workshop at the expense of the weaker more vulnerable groups of society such as, women and
472 children. Guijt (2014) mentioned domination as a permanent social behaviour that hinder
473 complete participation by the weak and vulnerable individuals in society. Furthermore,
474 Campbell (2017) highlighted the failure of participatory techniques to deal with some local
475 cultural beliefs that oppress and exclude certain people, particularly, women from expressing
476 their views. Such in-depth social analyses was beyond the scope of this study, although, it
477 would be essential to understand local contexts and power relations prior to operationalizing
478 participatory techniques (Smajgl & Ward 2015).

479

480 During their reflections, most participants expressed appreciation of the value of sharing
481 technical knowledge between farmers and technicians from different custom feeding centres.
482 In particular, participants from the communal custom feeding centres highlighted the benefit
483 of interacting with technicians from the Ikhephu commercial custom feeding centre as they
484 perceived them to have better technical knowledge of cattle production and marketing. The
485 observed interactions between technicians, interns and farmers from the custom feeding centres
486 provided a platform for knowledge sharing, which is believed to facilitate rapid and wide
487 adoption of technologies (Ainembabazi & Mugisha 2014). However, it is more questionable if
488 all the Ikhephu attendees felt that these interactions were equally beneficial to them.

489

490 Although, the technical support staff associated with Ikhephu appeared willing to engage with
491 their equivalents at the custom feeding centres, the commercial farmers from Ikephu seemed
492 more reticent. Despite them being well-aware of the occurrence of the workshop and able to
493 travel independently to attend, their attendance was very low. The few that attended were more
494 focused on receiving practical project support and had limited interest in the idea of problem
495 solving through knowledge exchange with other farmers. During the course of the workshop
496 they mentioned that it was not that the commercial farmers from Ikephu were opposed in
497 principal to assisting communal farmers through peer-to-peer learning, they were just ‘very
498 busy’ and had more immediate issues to focus on. In retrospect, it would have been interesting
499 to hold two separate workshops with the same objectives, one for Ikhephu farmers and
500 technicians and another for the two custom feeding centres as a way of neutralising domination
501 by Ikhephu technicians that might have been at play during the workshop.

502

503 The online knowledge exchange platform created facilitated sharing of information presented
504 during the workshop. Further engagement with the Facebook page was, however, limited by

505 the lack of familiarity with or access to ICT by stakeholders, primarily farmers. This ultimately
506 facilitated less discussion and sharing of know-how than was anticipated, perhaps because the
507 approach was primarily driven by the technical interns who were more familiar with
508 information computer technology (ICT) than the farmers. Furthermore, few of these interns
509 remained with the custom feeding programmes for more than a few months after the workshop
510 was held. According to Fatehkia et al. (2018) the current digital revolution enabled by an
511 expansion of ICTs has great potential use in promoting better knowledge exchange, access to
512 information and skills as well as expression of ideas among communities.

513

514 **5.0 Conclusions and recommendations**

515 The major constraints to the effective delivery of the custom feeding centres highlighted by
516 participants include, inadequate cattle production skills, lack of technical knowledge on feed
517 production and unreliable cattle feed delivery. A package of opportunities including on-site
518 feed production, developing sustainable support networks, establishing a communal herd to
519 cover feeding centre's running expenses and creating an online information sharing platform
520 for cattle producers was suggested by participants. Overall, the participatory approaches
521 adopted were useful in exploring beef cattle custom feeding programme delivery challenges
522 and opportunities, fostering stakeholder engagement, enabling open sharing of knowledge and
523 experiences.

524

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630

Table 1: Solutions suggested by participants during the workshop

Category	Solutions
Technical	Develop more stringent rules to limit animals of poor quality from entering into custom feeding centres.
	Explore ways for custom feeding programmes to produce their own feed and thereby reduce dependence on commercial feed supplied by the government.
	Acquire the necessary equipment for on-site feed production and formulation.
Infrastructural	Repair roofs to avoid leaks and spoiling of feed.
	Improve perimeter fencing to prevent access to feedlots by stray livestock.
Institutional	Investigate the possibility of developing closer links with alternative actors including different government departments, NGOs and private companies.
	Explore the use of community land for growing crops and forage.
	Explore alternative health care management systems for cattle in feeding centres.
Economic	Raise membership fees to provide more funds for operation of the custom feeding programmes.
	Ask to members to donate a cow or equivalent to develop a collective, nucleus herd which will be used to provide weaners to the feeding centres and generate income.
	Explore the possibility of introducing insurance for animals at feeding centres and how best to achieve this.
Political	Have a dedicated committee that holds regular meetings.
	Enforce existing regulations so that all members follow formal procedures and desist from asking for special favours.
	Address issues of corruption and nepotism within local political structures involved with feeding centre operation.

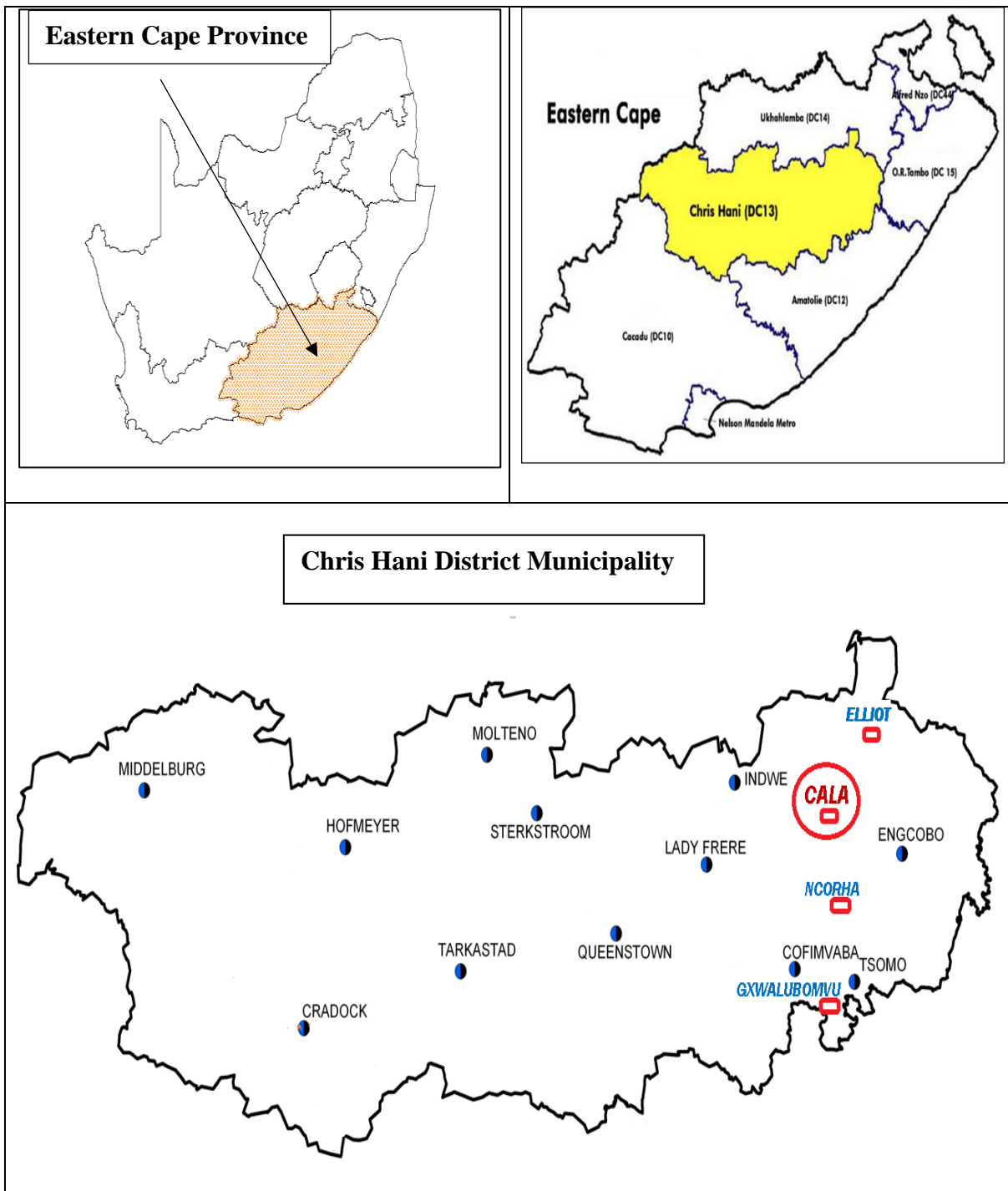


Figure 1: Map showing the locations of the workshop venue and the three communities from where participants were drawn.