Expert Note
Barbara van Koppen
MUS Cost Benefit Analysis Workshop
Leiden, 22–24 February 2010

SUMMARY ACCORDING TO THE GRID

a. **Conceptualization of Multiple-Use water Services (MUS), from your own perspective and experiences**

Fully recognizing many other important fields of MUS, this note focuses on two interpretations: homestead-scale MUS and community-scale MUS as promising new steps.

Homestead-scale MUS is defined as providing minimal 50 lpcd near to homesteads, out of which 3-5 lpcd is safe for drinking.

Community-scale MUS is a public water services approach that takes one or more communities or a sub-basin as entry point for participatory planning and design of incremental water interventions according to the people's own priorities. Community-scale MUS builds on people's own local water development and management since time immemorial. The latter is characterized by the use and re-use of multiple water sources (rain, groundwater, wetlands and natural or human-made streams and ponds and lifting devices), to meet multiple domestic and productive needs.

b. **Operationalization or specification of that conceptualization in terms of Cost-Benefit Analysis and performance, and related scientific methodologies**

Homestead-scale MUS

For cost-benefit analysis of homestead-scale MUS, I refer to the work by Mary

Renwick et al (2009) on 'service levels' for livelihood benefits generated by investments in infrastructure and management. I see two additions/extensions, which are valid across the water sector. First, for inter-sectoral comparison, it would be good to find comparative measuring methods so one can add the very different livelihood benefits from water use, in particular health, reduced drudgery, and the benefits from ecosystem services. In such measurement, how could people's own priorities be captured, as not all needs are market-related, certainly not for the poor? As non-economist, I rely on my colleagues for this. A second addition is that I think it is important to include people's own costs through (partial) self-supply – often unnoticed informal initiatives for livelihoods upon which the public sector could better build. A high own costs/public costs of a service would be 'better performance'.

Community-scale MUS

For cost-benefit analysis of community-scale MUS, we are still in the stage of unraveling the untapped opportunities. I have little idea about methods that grasp the complexities of multiple users, uses, resources, and efficient and sustainable services to meet own priorities. In any case, concerns about methods should not become a constraint to identifying what is obvious from a sociological (or common-sense) viewpoint.

c. **Evidence and/or hypotheses of the superior performance of MUS compared to single-use approaches with related performance indicators (or be the devil's advocate on any lack of proof and hypothesized disadvantages)**

Homestead-scale MUS

See work by Renwick et al on cost-effectiveness of investments to achieve more livelihood benefits. Further, homestead-scale MUS is the only water service that can categorically reach the landless and the sick. Moreover, productive activities at the homestead are significantly better within the reach of women than productive

activities elsewhere. Below, I argue that the superiority of homestead-scale MUS warrants it to become a basic human right.

Community-scale MUS

Its superior performance emerges from the eight untapped opportunities listed below. Performance indicators for these opportunities include: more livelihood benefits meeting people's priorities, including those of the marginalized; water resource efficiency; technical and institutional sustainability and cost-effectiveness; high own contributions of (partial) self-supply; communities' long-term empowerment; scalability across the nation.

d. Three most promising next steps to tap the untapped opportunities of MUS for practical change in design and implementation

The note below is structured according to these opportunities:

a. Calling for homestead-scale MUS as a basic human right
b. Testing the hypothesized eight untapped opportunities of community-scale MUS, including the de facto and potential transformation of domestic-plus/homestead-scale MUS and irrigation-plus into community-scale MUS
c. Further exploring the merits of the underlying principle of MUS, which is that public service providers recognize (poor) water users' own priority needs and practices. This puts the notion of 'services' at the center stage.

e. Related to priority research topics and methodologies that corroborate advocacy to promote MUS (or challenge the expected superiority of MUS).

Implementation of MUS at larger-scale, accompanied by research to advise, document the process and measure the impact.

1. INTRODUCTION

An important next step for MUS is its implementation at larger-scale, accompanied by research to advise, document the process and measure the impact. This note highlights three research domains to support such implementation at scale and also to communicate the merits of MUS at policy levels. Definitions of MUS are clarified as well. These research domains are:

- Calling for homestead-scale MUS as a basic human right to water
- Testing eight emerging untapped opportunities of community-scale MUS approaches and to developing and applying CBA methods to corroborate its superiority vis-a-vis single-use approaches
- Further developing the underlying principle of MUS, which is that public intervention and design better builds on water users' own priorities and practices.

2. HOMESTEAD-SCALE MUS AS A BASIC HUMAN RIGHT

Homestead-scale MUS is defined as providing minimal 50 lpcd near to homesteads, out of which 3-5 lpcd is safe for drinking. Past research (Renwick et al 2007; Van Koppen et al 2009) has shown that homestead-scale MUS cost-effectively contributes to all MDGs. It is the only water service that can categorically reach the landless and the sick. Moreover, productive activities at the homestead are significantly better within the reach of women than productive activities elsewhere.

With growing interest of the UN and human rights organizations in MUS, a next step seems appropriate: calling for the acceptance of MUS as a basic human right, which implies that governments commit to providing such services. Calling for a universal right warrants indicating that the needs are universal among the rural and peri-urban poor whose livelihoods depend in many ways upon water. Evidence abounds that a significant proportion of these people already use water that is sufficiently and reliably available near homesteads for domestic and productive uses, whether planned or not. A lack of uptake for productive uses does not mean that there is no

basic human need. Current absence of significant productive uses of 'domestic supplies' can be hypothesized as being caused by precisely the lack of services: service levels are too low or too unreliable, water is too expensive, etc. Other causes of limited uptake of water for productive uses, such as limited fencing against roaming livestock can be solved – certainly if MUS becomes widespread practice.

Stating that there is enough evidence already does not deny the need for more research on the cost-effectiveness of MUS and to corroborate the generic validity of the claim that MUS is a universal need. For example, both women and men can be asked about their priority if they had the choice between investing a certain amount of public resources in providing homestead-scale MUS or spending that for distant reservoirs, irrigation schemes, cattle drinking places etc. The hypothesis would be that if both women's and men's voices would be heard equally, homestead-scale MUS would be articulated as a much stronger priority than is realized now (in the productive sectors).

The call for recognition of homestead-scale MUS as a gender-equitable basic human right would probably meet little resistance in terms of quantities of water. Global consensus is already going towards 50 lpcd and more, as minimum quantities for domestic uses only. Maintaining more or less the same levels allows focusing the argument on the evidence of the de facto productive uses of those quantities as a universal phenomenon. The argument is then that these de facto productive uses ALREADY meet the human right to livelihood, food, the obligation to avoid starvation and the Convention of elimination of all forms of discrimination against women (CEDAW). Public agencies, including the UN apparatus, should claim the livelihood benefits that their (proposed) investments generate, instead of calling those tangible benefits 'illegal' – as the only banker in the world who refuses to recognize part of the returns to its investments. Again, overcoming sectoral silos gives innovative concrete ways of using water for both domestic and 'productive' human rights – hitherto fully un-operationalized water-related human rights. It is a win-win strategy for the range of constituencies that are currently calling for water

as a basic human right, trying to improve water services for the poor towards higher service levels, and for other human right groupings looking at livelihood and food.

Expectedly, the main issue will be water quality– at least for surface water systems or where groundwater is polluted. Further research on factual costs and effectiveness of central treatment could further corroborate whether centralized treatment is really so expensive, certainly compared to installing two separate distribution networks to meet the various basic needs. Point-of-use treatment may appear an even better alternative, corroborated by the argument that using very clean water for domestic and productive purposes that do not need such high quality is, in fact, an unacceptable waste of tax payers' money.

It would be interesting for e.g. the MUS Group to explore the interests of the various stakeholder groups in the UN apparatus in MUS as a concrete way to meet their goals.

3. THE EIGHT UNTAPPED OPPORTUNITIES OF COMMUNITY-SCALE MUS

Community-scale MUS is a public water services approach that takes one or more communities or a sub-basin as entry point for participatory planning and design of incremental water interventions according to the people's own priorities. Community-scale MUS builds on people's own local water development and management since time immemorial. The latter is characterized by the use and re-use of multiple water sources (rain, groundwater, wetlands and natural or human-made streams and ponds and lifting devices), to meet multiple domestic and productive needs.

The foregoing section on homestead-scale MUS as a basic human right suggests that homestead-scale MUS would automatically emerge as a priority in participatory planning. Intervening agencies can decide to limit themselves to water provision

nearer to or at homesteads with a great likelihood that they do address priorities. However, while these homestead-based water needs are (being) satisfied, water interventions in other sites of use, in particular from open water bodies and in fields or forests, are also relevant for communities, certainly for escaping poverty through significant income gains which warrants larger-scale self-employment or other employment than the homestead alone.

Fig 1: Overview responsibilities, phases and steps in community-scale MUS

<table>
<tr><th>Responsible Organization</th><th>Phases</th><th>Steps</th><th>Steps</th></tr>
<tr><td colspan="2">Creating a supportive environment</td><td colspan="2" rowspan="6"></td></tr>
<tr><td rowspan="2">Local authorities and support agencies</td><td rowspan="2">Initial</td><td>Step One: Mobilize support</td></tr>
<tr><td>Step Two: Select communities</td></tr>
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<tr><td rowspan="3">Communities facilitated by local structures and support agencies</td><td rowspan="3">Participatory planning</td><td>Step Three: Understand the community and build capacity</td></tr>
<tr><td>Step Four: Create a vision and select activities to fulfil it</td></tr>
<tr><td>Step Five: Compile action plans</td></tr>
<tr><td></td><td>Implementation</td><td>Step Six: Implement the action plans</td><td>Continuous ‘Step’ Seven: Do participatory monitoring and evaluation and impact assessment for follow-up</td></tr>
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The methodology for community-scale MUS is straightforward and similar to any participatory approach[1]. The approach adopted in the SADC/Danida Water Sector Support Programme’s IWRM Demonstration Projects in Malawi, Mozambique,

[1] The authors are not aware of others who systematically elaborated and pilot-tested participatory approaches for all water needs, not for either domestic or irrigation.

Namibia, Swaziland and Zambia[2] is depicted in figures 1 and 2. The first two steps are the responsibility of the local government and the wider supportive environment. The next five steps are decided upon by the community, but are facilitated by support agencies. The components of the steps are indicated in Figure 2. The steps are more or less chronological but not rigid. None of these steps should be skipped as some decisions are difficult to revise later. For example, once sites of new infrastructure have been selected, the potential beneficiaries have also largely been determined. However, for other issues, such as the technical feasibility assessment, it may well be necessary to go back to earlier steps once or twice or even more often to adjust the process because of new information or unforeseen events.

Pilot testing and empirical documentation of communities' and small-scale private suppliers' own initiatives in e.g. Cochabamba (Mikhail and Yoder 2008; Van Koppen et al 2008; Van Koppen et al 2009) found the following eight untapped opportunities of community-scale MUS compared to single-use planning and design processes. As for much in MUS, most are again 'open doors'. Yet, it would be good to further translate these untapped opportunities into hypotheses on Cost-Benefit Analysis and performance that could then be further tested empirically.

[2] In these IWRM Demonstration projects, the name for community-scale MUS was 'local-level Integrated Water Resource Management'. These are full synonyms in this expert note.

Figure 2: Project steps and their components in community-scale MUS

Step One: Mobilize support

- Strengthen existing development plans.
- Compile integrated support.
- Define targeting procedures.
- Establish horizontal, integrated service delivery structures.
- Ensure vertical national support.

Step Two: Select communities

- Develop selection criteria within time and funding frames.
- Communicate widely and test for compliance.
- Select.

Step Three: Understand the community and build capacity

- Build trusting relationships and communicate the project concept.
- Do contextual profiling.
- Train the community and select community mobilizers.

Step Four: Create a vision and select activities to fulfil it

- Do participatory situational diagnosis and problem analysis.
- Create a vision of new ways to manage water.
- Rank opportunities and needs.
- Select activities for implementation.

Step Five: Compile detailed action plans

- Create and train community structures.
- Specify actions, roles and budgets.
- Sign off.

Step Six: Implement the action plans

- Construct communal infrastructure and develop the capacity to operate and maintain it.
- Create management structures and develop their capacity.
- Implement the accompanying interventions and develop the capacity to maintain them.
- Ensure sustainability when exiting.
- Operate and maintain infrastructure and continue capacity development.

Continuous 'Step' Seven: Do participatory monitoring and evaluation, and livelihood impact assessment for follow-up

- Monitor planning, implementation and use.
- Monitor the impacts on livelihoods.
- Identify follow-up plans for community-based water resource management.

Opportunity one: investments in infrastructure are more efficient and sustainable than conventional investments from an institutional perspective

- Meeting people's own **priority needs** creates ownership; this is the single most important condition for sustainability of investments.

- Communities can consider their existing water resources, technologies, uses, and management arrangements in a holistic way, through a **one-window participatory process**. This saves transaction costs compared to a range of parallel participatory processes for each different water use.

- Existing **institutional arrangements** for water governance are built upon and adapted as needed. This is efficient and promotes sustainability. It strengthens institutions by avoiding artificial separations according to single-uses that tend to be promoted by single-use interventions.

Opportunity two: investments in infrastructure are more efficient and sustainable than conventional investments from a water resource and technical perspective

- Community-scale MUS considers **multiple water sources** (rain, run-off, surface bodies, groundwater, wetlands) in an integrated manner, as communities also do. This enhances efficiency as water resources are accessed in more optimal combinations, from homestead to community level. Even just at homesteads, people can use up to nine different sources, as found in Thailand (Penning de Vries and Ruaysoongnern 2010). Communities' coping strategies for dry spells and dry seasons typically build upon combining different sources. Water uses can be differentiated according to the quantities and quality of available resources. Conjunctive water uses are promoted by e.g. groundwater recharge interventions.

- Related to the above are the efficiencies of **use and re-use** of water resources, also from homestead to community level and higher scales. This concerns both water quantity and quality issues.

- An integrated approach that considers the different vertical scales gives new opportunities. **Economies of scale** are achieved by designing surface dams or reservoirs and conveyance infrastructure for bulk water supplies for multiple purposes. However, implications for upfront capital costs and especially communal management may still favour lower-scale investments. Water quality issues can also better be addressed by considering the most appropriate scale of e.g. treatment.

- Communities' **own technical plans** can be built upon. This saves costs and also greatly increases ownership. Communities often already have many plans, combining the bits and pieces of support from the diverse projects into a meaningful ensemble (Mikhail and Yoder 2008).

- Participatory needs assessments tend to highlight many possibilities for **rehabilitation**, in contrast to conventional water services, which tend to favour new constructions with less attention to the needs for maintenance and rehabilitation after project closure.

- All existing infrastructure, whether designed for domestic uses or irrigation, can be taken as **sunk costs**. Adding new components only to already existing infrastructure saves costs.

- Community-scale MUS **prevents damage** from otherwise unplanned uses. If people's priority uses are not accommodated for, they will find their own way. Especially if domestic uses are not accommodated for by the productive sectors, people and cattle will use irrigation water or small reservoirs for those purposes. This creates health risks. Planning for such priority uses **avoids health risks.**

Opportunity three: Community-scale MUS contributes to all MDGs

Poverty is multi-faceted, and encompasses lack of food, income, access to safe drinking water and other basic services, participation, decision-making power and voice, self-confidence, and all other dimensions of the MDGs. Community-scale MUS directly or indirectly contributes to all these dimensions of wellbeing.

Moreover, the dimensions mutually reinforce another. This renders the total impact on wellbeing more than just the sum of each dimension.

Opportunity four: community-scale MUS has the potential for reaching the poor and women, but this potential is only realized if from the first contacts onwards a community project leadership is created that champions a communal win-win process and refrains from capturing project resources

By considering the entire community, one can avoid that contacts are limited to the most vocal members only – as happens so often. Instead, a participatory community approach allows effectively reaching out to the poor and to women water users. However, this warrants an extensive scoping phase in which village composition, leadership, factions, history and past water initiatives, etc are fully understood; in which genuine representatives are selected; and in which accountability is ensured for the further planning process. Usually, this requires capacity building to that end. Only if the marginalized are included from the onset of a project can they effectively participate in negotiations on public resource allocation that benefits all. Another condition for inclusive processes is the unpacking of what is often hidden as a 'technicality', in particular the siting and lay-out of new infrastructure. This largely determines the beneficiaries. Lastly, wage employment for construction typically reaches the poorest – but there may a trade-off with encouraging future land-owning irrigators to invest in their property.

Opportunity five: distinguishing the planning and implementation phase, also in the financing arrangements, ensures ownership, facilitates negotiations and enhances transparency

In the SADC/Danida Water Sector Programme's IWRM Demonstration projects, the financing conditions allowed for, firstly, financing a participatory phase of scoping, visioning and compilation of action plans up to a certain ceiling, and, secondly afterward, the financing of the factual implementation according to agreed budgets. This separation avoids that water interventions are driven by top-down budgeting by national-level officers for a top-down decided infrastructure design sometimes

even without any contact with the future owners. Instead, in the planning phase of community-scale MUS there is an indication of the ceiling of available funding, while all space is left to the communities to translate identified priority needs and potential interventions into feasible, bankable projects with plans, players, and budgets. During this phase the community and service providers should agree on the unit costs of skilled and unskilled labour, materials and transport; and on the own contributions of communities. If not, as the SADC/Danida IWRM Demonstration projects learnt, the chance is high that communities keep negotiating on the wage rates for their labour contributions under the contractor's pressure to get the job done. With regard to the common question whether participatory processes do not take too much time, it was observed that the technical feasibility assessments by the outside service providers slowed the pace down; communities were always ready.

Once the budget is approved and implementation starts, communities should be fully informed about the budget and any money transactions of all activities in their communities (but not necessarily of the salaries of supporting agents). If not, as the SADC/Danida project learnt, any change in activities, even small changes that could be easily and fully justified, leads to some suspicion, if not gross allegations, that 'money was eaten' by the implementing agent and/or community leaders.

Opportunity six: by building on the past and empowering for the future, a community-scale MUS project is 'one loop' in long-term improvement of communities' integrated water development and management

Time- and budget-bound community-scale MUS projects do not only generate the above-mentioned immediate benefits, but one community-scale MUS project is essentially one loop in communities' longer-term learning and improvements in their integrated water development and management. Lessons learnt in one loop can considerably accelerate and improve next loops. Community-scale MUS is well rooted in communities' past integrated water resource management and looks into the future. Especially the visioning process elicits communities' longer-term aspirations for developing and managing their water resources. The art of the

facilitator during the planning phase is to help the community in carving out one building block that can be implemented realistically and brings tangible benefits within the given budget- and time-frame, but also contributes to larger and longer-term aspirations.

An powerful skill learnt through the participatory needs assessment, visioning and compilation of action plans is the ability to design bankable time- and budget-bound projects that meet genuine needs and that can be submitted to the same funding agency or another future one. Moreover, communities are empowered through the strengthened contacts with local government, NGOs and governmental and private service providers, and more funding agencies. This prepares them much better for not only the sustainability of the current project investments but also for any next project.

Opportunity seven: community-scale MUS triggers horizontal coordination among supporting agencies, especially local government, for significant long-term increases in the benefits from water

The major challenge for community-scale MUS is not with communities, for whom water needs and other needs as well as water resources and other resources are integrated, but with the public service providers. The public water sector itself is fragmented into single-use sub-sectors, and government line agencies are fragmented into agriculture, health, fisheries, social development, rural engineering, market, and land tenure departments. Each agency has its own goals, specialization, and planning and funding cycles. Agencies can even contradict and contest each other, at the detriment of communities. This hampers the provision of the coordinated one-window services that generate the higher benefits from water for multiple uses according to locally specific needs.

Community-scale MUS triggers agencies to better collaborate, as coordinated by local government, e.g. by creating horizontally integrated technical committees at the interface of the support agencies and the communities. The district government is pivotal to realize such coordination. They play a critical role, from the selection of communities up till the after-care after a time- and budget-bound project closes.

District governments can also coordinate with other projects and private suppliers in the area. Local government is best placed to coordinate the multitude of small initiatives for more effective and longer-term solutions for the following reasons.

- With progressing decentralization, their mandate is to define, allocate and support or implement development projects and they increasingly have the legal and budgetary competency for that in the national system.

- Local government lives in the area and knows the people. They have the critical contacts with the (Traditional) Authorities which are essential for any development. They can make things work and solve, or rather prevent, inevitable conflicts.

- Elected councillors are often more accountable to their constituencies than agencies with upward accountability, even though councillors' political interests may negatively interfere in service delivery.

- Although staff turnover can be high, local government is permanent as an institution.

- Local government is often more cost-effective. Close to communities, their salaries and transport and operation costs are much lower than those of national or international experts.

- Local government usually represents diverse technical skills, but they lack capacity and resources. However, for the factual implementation of many projects, the latter already strongly rely on ad-hoc solicited cooperation of district technicians. Moreover, new projects can be used to further build such local capacity. This is not to deny the importance of line agencies or private experts that can be called upon for more specialized technical support.

- In any case, after project withdrawal, local government is expected to solve problems even if they were created by poorly designed and implemented

projects in which local government had no stake in the first place. Without genuine ownership by local government and communities from the onset, core sustainability issues cannot be addressed effectively.

- Lastly, local government is the best placed to address a pervasive sustainability issue, which is that communities' own contributions and the per diems and sitting allowances for both staff and for communities greatly differ per project. Temporary high allowances jeopardize staff and communities' motivations for free contributions to maintenance once the project has stopped. By some form of harmonization of contributions and allowances by local government, and cross-subsidization from the 'richer' to the 'poorer' interventions, they become more sustainable and equitable.

Opportunity eight: community-scale MUS can be scaled-up nation-wide

The above-mentioned approach in which one community-scale MUS project becomes one loop in longer-term district-wide processes for communities' empowerment and better water services delivery, can be scaled-up within a district and across districts. This warrants higher-level program managers and policy makers to enable community-scale MUS by

- removing single-use earmarks to financial, technical and institutional support to water services delivery
- strengthening local government planning and implementation and accountability through best-practice community-scale MUS projects
- ensuring that technical expertise (engineering, hygiene education, health, markets, land, extension, veterinary care, etc) can be called in according to local needs, e.g. as officers reporting to both local government and their line agency.
- allowing for two-phased financing of a participatory planning phase and implementation

These conditions are simple and, in principle, they can rather easily be created by NGOs, the domestic sector and the productive public sector and private service providers alike. Starting points are different, but the ultimate goal of community-scale MUS is the same. The domestic sector would gradually 'move up' from its current homestead-focus to community-level integrated water management. The productive sector engaged in bulk water supplies would 'move down' from its general focus on larger-scale schemes and storage to also include the homestead as a site of both productive and domestic uses. Individual irrigation technology promoters would explore multiple uses, especially around homesteads.

In the rare cases in which there is both support for domestic water use development and productive water use development, joining forces and disciplinary expertise would allow significantly more impact for the agreed levels of investment. But in most cases, support for any water use is limited, if not absent. In this case, it is even more important that people's own priorities should guide the spending of that limited public resource. In neither case, there is any need for the one sector to wait for the other to start work, or to establish cumbersome new forums for coordination, other than already exist in local government.

4. WATER SERVICES TO SUPPORT INFORMAL PRACTICES

The third possible research domain for MUS is to further disentangle the underlying principle that triggered the understanding of untapped opportunities of MUS for better water service delivery. That principle is that public service providers recognize (poor) water users' own priority needs and practices. Instead of discarding those as undesirable, if not illegal worth fining and even jailing, people's own efforts to meet important livelihood needs are appreciated as vital contributions to the overall aim of improving wellbeing and livelihoods (– and votes for that matter). People's ingenuity and creativity are tapped. The redesign of India's large-scale irrigation schemes to recharge groundwater that then allows massive groundwater pumps is the largest-scale example (Shah 2010). The new role of the public sector is then to nurture own investments and complement with

financial, technical, and institutional support services for components that are unlikely to come from poor, scattered, individual water users.

In a services approach that holds across the domestic and irrigation (Renault 2008) water sub-sectors., services can be defined as public support to bring certain water quantities of a certain quality to a specific place at a specific time according to people's own priorities. Costs are defined for the public agencies for bringing the water, and for the private investments made by the future water users for using the water. Benefits concern the number of benefiting water users, their composition (gender, wealth, etc), their uses and the livelihood benefits derived from those uses. Those livelihood benefits can be expressed in comparable terms, or in terms that reflect people's own priorities, especially the priorities by the poor and women.

Performance indicators would look at the changes triggered by the investments made. Performance is good if benefits are high compared to costs. Other indicators for good performance could be (a) a high private/public ratio, and (b) benefits that accrue to the poor and women. Again, these criteria hold across the water sub-sectors.

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